

THREE INSTRUCTIONAL STRATEGIES
FOR TEACHING PHONEMIC SEGMENTATION
TO KINDERGARTEN CHILDREN

By

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To my family,
whose love and support
are enduring.

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Abstract of Dissertation Presented to the Graduate School
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This study investigated the effectiveness of three instructional methods for teaching phonemic segmentation to kindergarten students. It also studied the relationship between kindergarten students' skills in phonemic segmentation and their skill in letter recognition, in identifying initial consonants, and in letter matching.

Students were pretested and posttested with the Tunmer-Nesdale Phonological Awareness Test. They were also posttested on their skill in letter recognition, in initial consonants, and in letter matching.

A pretest-posttest control group design was used to examine the treatment effects. The 81 students were

randomly assigned to three experimental group classrooms and one control group classroom.

Experimental group members participated in 8 weeks of instruction in phonemic segmentation. The experimental groups were the IBM Writing to Read program, the auditory cues approach, and the auditory and visual cues approach. The control group did not participate in any direct instruction in phonemic segmentation.

Positive but unequal effects were observed for each of the three experimental groups. Data were analyzed using the analysis of covariance procedure and Pearson Product Moment Correlation coefficients for four null hypotheses. A significant interaction of pretest by treatment group was noted in the ANCOVA on the phonological awareness test. Specifically, the IBM Writing to Read group displayed higher levels of phonemic awareness than the control group but only for students with higher pretest scores. The auditory and visual cues approach using an adapted Elkonin technique, was clearly superior to the other experimental groups in student gains on the phonological awareness measure. Pearson Product Moment correlations revealed a significant relationship between phonemic awareness and the initial consonants measure for the IBM Writing to Read group, but no significant relationship between the letter recognition measure and phonemic awareness or between the letter matching measure and phonemic awareness.

CHAPTER I

INTRODUCTION

Background and Justification

Why most children learn to read easily while others struggle has been the focus of reading research on beginning reading for some time. Reading experts estimate that between 20 and 25% of beginning readers will experience difficulty in learning to read. They will "remain locked into a sight word stage of reading, able to cope only with those few words they have memorized" (Shankweiler & Liberman, 1989, p. 27). In other words, because these young readers could not master a system of phonics, they are forced to rely solely upon those words they have been able to memorize.

Various causes of reading dysfunction have been presented over the years and many remedial reading programs have been developed and carried out. Still, many students in today's classrooms face a lifetime of illiteracy because they are unable to surmount what Shankweiler and Liberman called the sight-word stage of reading. These children are not those who suffer neurological dysfunction, mental retardation, emotional disabilities, or other problems that could impede their

ability to become successful readers. In a classroom, they are typical students who unfortunately have not been able to learn to read.

Some important research in beginning reading instruction over the past 20 years has focused on the development of phonological awareness in young children and its relationship to phonics. Phonological awareness, defined as the awareness of the phonemic structure of words, has been identified as a superior predictor of first grade reading achievement (Shankweiler & Liberman, 1989; Wagner & Torgeson, 1987; Zifcak, 1976). Children who have a functional awareness of the sound structure of their language are more apt to be successful beginning readers than those who do not.

Other researchers have found phonemic segmentation, a component of phonological awareness, to be a necessary but not sufficient condition for learning to read (Tunmer & Nesdale, 1985). Phonemic segmentation, the ability to distinguish sound parts in spoken words in a specific sequence, is related to children's ability to learn basic phonic skills. These phonic skills are considered by Williams (1980) and others to be the primary task of any beginning reader confronted with a language based on the alphabetic principle.

English is one such language. These reading researchers believe that children who are unable to distinguish explicitly discrete sounds in words may be

hampered in their efforts to break the alphabetic code. Consequently, they may be on the road to reading disability. Also, children who do not master basic phonic skills within the first two years of reading instruction are at a severe disadvantage in learning to read (Durrell & Murphy, 1953; Williams, 1980). Therefore, it is essential for effective classroom reading instruction to discover who these children are and what can be done to bring them to a functional level of phonemic awareness.

Emergent reading programs, often presented during children's kindergarten year, have traditionally included auditory discrimination skills as one instructional component. Skills such as rhyming, syllable counting, and letter/sound correspondence are taught informally through poetry, songs, finger plays, stories, and rhymes. Early childhood teachers offer instruction in letter recognition and letter/sound correspondence through activities such as letter-of-the-week, letter and/or sound bingo, student or class dictated stories, experience charts, phonics lessons and follow-up worksheets, and where available, computer-assisted instruction. Teachers use these and other instructional activities to point out similarities and differences among words. They focus students' attention on words that begin with or end with the same sound. Teachers will often introduce beginning consonant sounds and may touch on ending sounds as well. Occasionally, instructors will introduce the vowel sounds, also. These

instructional activities are often part of students' introduction to reading instruction and serve as a foundation for the phonics skills taught in first grade classrooms as part of a formal reading program.

Research by Troyer and Yopp (1990) indicated that teachers do not usually incorporate instruction in phonemic awareness and specifically phonemic segmentation into their emergent reading programs. Although measures have been developed to determine the degree of phonemic awareness in young children (Lindamood & Lindamood, 1971; Stanovich, Cunningham, & Cramer, 1984; Tunmer & Nesdale, 1985; Yopp, 1988), and specific training in phonological awareness has been found to be both possible and efficacious for young children (Cunningham, 1988; Lewkowicz, 1980), it is not usually a component of emergent reading programs. If phonological training is included, it is generally so limited as to be insignificant in its impact on children's ability to distinguish the sounds in their language. If methods of instruction could be developed or could be discovered in already existing instructional programs, teachers might be more apt to incorporate phonemic awareness training in their early childhood emergent reading programs.

Statement of the Problem

The purpose of this research was to investigate whether instruction in phonemic segmentation improves kindergartners' skill in identifying sound parts in sequence in words. Specifically, the study was designed to examine the effectiveness of three instructional strategies for teaching phonemic segmentation to kindergarten students.

The following research questions were addressed in this study:

1. To what extent does instruction in phonemic segmentation influence kindergartners' skill in identifying the sequence of discrete sound parts in words?
2. Does the method of instruction in phonemic segmentation influence kindergartners' skill in identifying sound parts in words?
3. Does a relationship exist between kindergartners' skill in identifying sound parts in words and their skill in recognizing letters of the alphabet?
4. Does a relationship exist between kindergartners' skill in identifying sound parts in words and their skill in identifying initial consonant sounds?

5. Does a relationship exist between kindergartners' skill in identifying sound parts in words and their skill in matching letters of the alphabet?

Hypotheses

The questions under investigation in this research project generated four hypotheses stated in the null and tested at the .05 level of significance.

Hypothesis I: There is no significant difference among the control and three experimental kindergarten students' skills in identifying discrete sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test.

Hypothesis II: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in recognizing letters of the alphabet as measured by the Alphabet Recognition subtest of the Kindergarten Emergent Reading Assessment.

Hypothesis III: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in identifying initial consonants as measured by the Initial Consonants subtest of the Kindergarten Emergent Reading Assessment.

Hypothesis IV: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in matching letters of the alphabet as measured by the Letter Matching subtest of the Kindergarten Emergent Reading Assessment.

Delimitations and Limitations

This study was confined to the development, implementation, and evaluation of instructional methods in phonemic segmentation. It was further restricted to include the teachers and students in kindergarten classes in a single school in north central Florida. All students participating in this study were determined to be of normal kindergarten age and were not repeating their kindergarten year. All teachers in this study were fully certified in early childhood education by the state of Florida.

The limitations of this study related to the experimental sample, the restricted range of the grade level, and the specific focus of the study itself. One set of limitations was inherent in the use of students enrolled in kindergarten classes. The sample student population included only students in the kindergarten grade level who had not been retained previously and who were not enrolled in any special education classes except

speech/language therapy. All students in this study spoke English as their primary language. Generalizations to other student populations may be inappropriate.

Another set of limitations arose from the sample teacher population. First, the sample size was small and any generalizations from this study must be viewed as tentative. Second, while all teachers participating in the study were certified in early childhood education, there was variability in the amount of training they had in emergent reading instruction. Participation in this study was voluntary for teachers. The extent to which these factors might have affected the outcome of the study was not known.

The focus of this study precluded generalization to other phonemic awareness skills and to phonics skills generally. This study addressed the skill of phonemic segmentation only. All conclusions and generalizations must be limited to it alone.

Assumptions

In this study it was assumed that

1. Subjects possessed the intellectual ability and verbal skills necessary to understand and respond to the research tasks.
2. The assessment instruments adequately measured the ability to identify sound parts in sequence in words,

letters of the alphabet, initial consonant sounds, and visual letter matching.

3. The conditions under which the research tasks were administered were uniform to eliminate variation in the research procedures.

Definition of Terms

Phonological awareness is "the ability to perceive a spoken word as a sequence of individual sounds" (Lewkowicz, 1980, p. 686). It is an umbrella term that covers a variety of skills such as the ability to identify beginning, medial or ending sounds, to substitute sounds within words, to delete or add sounds to words. It is also referred to as phonemic awareness.

Phonemes are defined as classes of speech units, that is, word parts in succession. A phoneme is the smallest discrete sound within a word that makes a difference in the meaning of the word (Singh & Singh, 1982).

Phonemic segmentation is the ability to discriminate sound parts in a sequence in words.

Alphabetic principle is when the alphabet "represent(s) the phonological structure of words more or less accurately" (Mann & Liberman, 1984, p. 592). Mastery of the alphabetic principle "entails an awareness of the internal phonological structure of the words of the language" (Shankweiler & Liberman, 1989, p. 46). English is a language based on the alphabetic principle.

IBM Writing to Read System is a computer-based system designed to develop reading skills in young children through their writing. The 10 instructional cycles in the system are designed to teach young children the 42 phonemes that comprise the sounds in the English language. Each cycle provides lessons on three words and the phonemes that make up those words. The computer instruction is intended to guide students to the realization of the alphabetic principle, that is, by learning the 42 phonemes and then combining and recombining them, any word in the English language can be written.

Organization of Remaining Chapters

Chapter II is a review of the related literature. Chapter III contains the procedures followed in conducting this research project. Chapter IV presents the results of the investigation of instructional strategies in phonemic segmentation and the extent to which kindergarten students' skill in identifying sound parts in words is affected. Chapter V contains the conclusions and implications.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

This chapter is a review of the research and literature concerning phonological awareness and phonemic segmentation as they relate to beginning reading skills. The chapter establishes a theoretical basis for this research project. The major issues to be considered in this review are organized into four sections. The first section presents the historical background of the concept of phonological awareness as it relates to reading instruction. The second section is an overview of phonological awareness generally and phonemic segmentation specifically as a component of emerging literacy. The third section relates to instructional methodology in phonemic analysis. The fourth section includes the research on methods of evaluating young children's ability to analyze words phonemically.

Phonological Awareness: Conceptual Background

The basis for much of the research on the concept of phonological awareness is the work of K.D. Ushinsky of the former United Soviet Socialist Republic (Downing, 1973).

Ushinsky introduced an analytic-synthetic phonic method of reading instruction into the Russian school system over a hundred years ago. This methodology placed more importance on the auditory factors of reading behavior than it did on the visual factors. The rationale behind this view of reading is that it is the essential auditory processes that permit the reader to create the sound of a word instead of the visual processes. Only then is the reader able to connect the word to its meaning. The implications for instruction are that the sound structure of the language must first be understood by the child before the onset of reading instruction.

Ushinsky's seminal work on the auditory aspects of language as it relates to reading instruction was extended by another Russian, D. B. Elkonin. Elkonin (Downing, 1973) also viewed reading as "the creation of the sound form of the word according to its graphic model" (p. 559). He saw the major task of the preliterate child as developing the ability to analyze the sound structure of words. Elkonin saw this task surpassing simple auditory discrimination and letter-sound correspondence. He felt that an understanding of the sound structure of language had to precede the learning of the graphic representations of sounds, that is, the alphabetic characters. He believed that the preliterate child had to be able to distinguish these sounds in succession or sequence in a

word. Only then was the child considered capable of analyzing the sound structure of words.

Elkonin's work with the concept of creating the sound form of a word from its graphic representation included instructional methodologies for the preliterate child. Further discussion of this aspect of his work is in later sections of this chapter.

In summary, the work of the two Russian pedagogues, Ushinsky and Elkonin, established the conceptual basis for the role of the auditory processes in reading. Both viewed the auditory processes as essential to reading and saw the ability to analyze the sound structure of words as the primary task of the preliterate child.

Phonological Awareness and Beginning Reading

Recent research findings confirm the strong relationship between phonological awareness and success in beginning reading. Phonological awareness is "the ability to perceive a spoken word as a sequence of individual sounds" (Rozin & Gleitman, 1977, p. 57). Phonological awareness, sometimes termed phonemic awareness, is particularly crucial for readers of languages based on an alphabetic writing system. Understanding of the alphabetic principle enables the reader to reconstruct the spoken word through his knowledge of letters and their corresponding sounds. Without an understanding of the internal phonological structure of words, beginning

readers may not fully grasp nor be able to apply the alphabetic principle (Shankweiler & Liberman, 1989). To learn an alphabetic script, pre-readers must be able to attend to the phonemic differences in words.

Other researchers concurred with this emphasis on attaining a functional understanding of the alphabetic principle. Adams (1990) stated that understanding the alphabetic principle "depends equally on knowledge of letters and on explicit awareness of phonemes because it depends so closely on the association between them" (p. 54). She further stated that the preliterate child must "gain conscious access to phonemes" to comprehend completely the alphabetic significance of letters (p. 53).

For the beginning reader to reconstruct the spoken word through knowledge of letters and sounds, he/she must be able to accomplish three tasks. First, he/she must be able to identify the phonemes, or minimal speech units, which he/she sees represented in writing. Second, he/she must know what letter or letter combinations represent the phoneme. Finally, he/she must be able to blend the spoken units which correspond to the visual units in order to arrive at something meaningful, a word (Skjelfjord, 1976).

Fox and Routh (1976) provided support for the importance of phonic blend training, but only for those children who demonstrate some skill at phonemic segmentation. With some ability at segmenting, phonic blend training "is of value in helping children to

transfer letter-sound skills to a word-learning task" (p. 74). The phonemic segmentation task must precede the phonic blending task to be truly useful to the beginning reader. Lewkowicz (1980) identified segmentation and blending as the essential phonemic awareness tasks. That is, those most directly related to decoding.

The relationship of phonological awareness to reading success is important. Studies by Tunmer, Herriman, and Nesdale (1988) indicated "some minimal level of phonological awareness may be necessary for children to profit from letter-name knowledge in acquisition of phonological re-coding skill" (p. 134). Other studies have supported the hypothesis of the importance of auditory analysis skills in the word attack process (Durrell & Murphy, 1953; Fox & Routh, 1976; Gibson, 1965). Byrne and Fielding-Barnsley (1989) concurred as they pointed out "phonemic awareness appears to be necessary if a child is to take advantage of exposure to print and direct instruction in letter sound relationships" (p. 314).

Even beyond the initial stages of reading skill, the ability to perform simple phonological tasks is "significantly and substantially related to reading and spelling performance" (Calfee, Lindamood, & Lindamood, 1973, p. 298). These authors found the relationship between phonological tasks and reading and spelling achievement to exist through high school.

Bradley and Bryant (1983) found phonological awareness to be an excellent predictor of success in first grade reading instruction. Their study indicated that pre-readers must be able to think consciously about the sound structure of words to be successful at beginning reading tasks. Other researchers (Adams, 1989) stated that phonemic awareness is an essential determinant for reading success or failure for students entering school.

In summary, research has confirmed the relationship of phonological awareness to success in beginning reading instruction. Phonemic segmentation and phonic blending are regarded as the tasks closest to the decoding process.

Instructional Methodology in Phonemic Analysis

Phonemic awareness, defined by Byrne and Fielding-Barnsley (1989) as "knowledge about the segmental structure of the spoken word" (p. 313), is highly correlated with success in reading (Calfee, Lindamood, & Lindamood, 1973; Fox & Routh, 1975; Helfgott, 1976; Zifcak, 1977). That training in phonemic awareness does contribute to success in beginning reading has been shown in studies by Wallach and Wallach (1976) and Williams (1980).

Research studies indicate that some phonemic awareness tasks can be taught (Downing, 1973; Marsh & Mineo, 1977). Other studies show that certain of these tasks can be taught at an early age (Rosner, 1974).

Rosner's research indicated that children as young as four years old are capable of learning some phonemic analysis tasks.

One question that arises is which phonemic awareness tasks are essential to the task of beginning reading instruction and more specifically, to the decoding task. Lewkowicz (1980) identified two such tasks as most directly related to decoding for the beginning reader. The tasks were phonemic segmentation and phonic blending. Both Elkonin (Downing, 1973) and Skjelfjord (1976) concurred with this finding. Fox and Routh (1976) agreed, with the caveat that phonic blending is only of use to those children who have already mastered a minimal degree of phonemic segmentation.

How then should the task of providing effective instruction in phonemic segmentation to nonreaders be approached? Lewkowicz (1980) advocated isolation of the initial phoneme as the first step in the segmenting task. She identified this first task as "a helpful preliminary activity in learning segmentation" (p. 691) and noted that it is far easier to segment the initial phoneme than to segment the whole word. Skjelford's research (1976) concluded that isolation of medial and ending sounds during the initial stages of training is too difficult for the preliterate child. Isolation of the initial phoneme is more easily mastered and serves as a beginning point for segmenting the entire word.

Elkonin (Downing, 1973, p. 568), based on his research, noted that word analysis had to be "on the level of overt utterances." That is, the analysis had to be oral. Not only did it have to be pronounced aloud, the oral segmentation had to be pronounced by the child, not just the instructor. He also concluded that the child must have practice to develop the skill of phonemic segmentation.

Elkonin (Downing, 1973) and Skjelfjord (1976) recommended slowed, stretched pronunciation for each phoneme. This allows a more deliberate examination of the phoneme. It also provides the child with articulatory cues including auditory ones and reinforces the idea that the child must do the pronouncing. Articulatory cues are also stressed by Lindamood and Lindamood (1969) in their auditory discrimination training program and by Rosner (1974) in his work with preschoolers.

Although the skill of phonemic segmentation must be taught and practiced at the overt level, it is also important that at some point the child internalizes the skill. The skill must become a mental process without overt manifestations. Elkonin (Downing, 1973) discussed the problem of helping the preliterate child develop the sound analysis of speech so that it ultimately becomes a mental process. To do so, he envisioned this skill proceeding through a series of stages (p. 560). These stages are as follows:

1. Establishing a preliminary conception of the task.
2. Mastering the operation with objects.
3. Mastering the operation at the level of overt oral speech.
4. Transferring the operation to the mental level.
5. Operating at the entirely mental level.

Elkonin emphasized that it is not enough for the child to segment words by overt pronunciation alone. The child must also have some means to objectify the sounds. That is, the child must be able to represent the sound parts in words in sequence in a material way. Elkonin cautioned against using letters as a means to objectify sounds in a word. For although the written form of the spoken word is the end product desired, it is not appropriate for the beginner who must concentrate on the sound form of the word. The beginner must focus his attention on the sounds in succession in the word, not on the graphemic representation of the word, in order for the process to become a purely mental one.

The process Elkonin recommended was to use markers to represent each sound part in a word in succession. As the child articulated each phoneme in a slow stretched manner to make the sound parts explicit, he placed a marker on a diagram. The diagram represented the number of sound parts or phonemes in the target word. Using this method, "the temporal succession of sounds was materialized in the

form of arranging counters in successive spaces. These appeared before the child distinctly as the sound composition of the word, its structure" (p. 563).

Lewkowitz (1980) also advocated some means by which the child can keep a tally of the number of sounds he/she has discovered in a word as he/she segments it. Byrne and Fielding-Barnsley (1990) utilized letters in their recent studies with small groups of preliterate children. They reported good results in children's ability to identify phonemes across words, that is, that mat and mow begin with the same sounds. Their phonemic segmentation task differed from Elkonin's task because they emphasized segmenting the initial phoneme as in mmm - at while teaching letter-sound correspondence simultaneously.

The IBM Writing to Read program also teaches phonemic analysis and segmentation through a system of computer-assisted lessons. Using letters, pictures, whole words, and oral responses, kindergarten students are taught each of the separate 42 phonemes that comprise the English language. The lessons teach associations between letters and their corresponding phonemes through the computer program. Research by Singh (1991) indicates that the IBM Writing to Read program is effective in teaching kindergarten students to recognize sounds in words.

In summary, research into instructional processes confirms that phonological awareness and specifically phonemic segmentation can be taught to the preliterate

child. Some research indicates that children as young as four years old can be taught certain phonological tasks.

Measuring Children's Skill in Phonemically Segmenting Words

The past twenty years have yielded a good deal of information about the role phonemic awareness plays in beginning reading instruction. It has indicated, too, various means for measuring young children's skill at phonemic segmentation. Phonemic segmentation and phonic ← blending have been identified as two essential skills for the preliterate child (Downing, 1973; Shankweiler & Liberman, 1989; Skjelfjord, 1976). They have also been identified as the two phonological skills most closely related to decoding (Lewkowicz, 1980). Decoding is considered by many researchers to be the primary task of the beginning reader (Adams, 1989). This section will review the literature on tests developed to measure the child's skill at phonemically segmenting words.

A test designed to assess a child's ability to count the number of phonemes in a word was developed by Liberman, Shankweiler, Fischer, and Carter (1974). The instrument 42 utilized one-, two-, and three-segment real words. The child was asked to listen to a word and then tap the number of sounds heard with a pencil. Before the administration of the actual test, the child was trained by the examiner. Correct responses were confirmed.

Incorrect responses were corrected. The child's score was the number of correct responses out of a possible 42.

Another instrument to evaluate a child's ability to segment words phonemically was developed by Goldstein (1976) as part of the Goldstein Word Analysis and Synthesis Skill Test. The subtest asked the child to say the target word spoken by the examiner in a segmented way. That is, if the examiner said cat, the child was to respond c - a - t. As the child segmented the target word, he placed a marker on a row of four squares. Target words were two- and three-phoneme real words. Two examples were given to the child by the examiner before the test. On the test, correct answers were confirmed. Incorrect answers were corrected. Correct responses were the number of words correctly segmented both orally and with the markers.

A third instrument to measure phonemic segmentation was developed by Yopp and Singes (1984). This test utilized real words composed of two or three phonemes. This child's task was similar to Goldstein's in that he/she was to segment each sound of a word in order when presented with a target word. If the examiner said dog, the child's correct response was d - o - g. Correct responses were confirmed. Incorrect responses were corrected. The score was based on the number of words the child correctly segmented independently.

Based on their earlier studies (Tunmer & Nesdale, 1982, 1985), Tunmer, Herriman and Nesdale developed a test in 1988 of phonemic segmentation skill that differed markedly from previous instruments. The new instrument utilized nonwords as opposed to real ones. The authors found in their earlier research that real words containing digraphs and high frequency words generally gave an inaccurate picture of the child's ability to segment words phonemically. This test is composed of twenty nonword items. The child is provided with several demonstrations and trials during the practice session. The child is asked to repeat the target word and then tap its number of phonemes. Correct answers were accepted but not confirmed. No corrective feedback was given during the test.

In summary, tasks have been designed to measure the preliterate child's ability to segment words phonemically. Some measures utilize a tapping task while others ask the child to segment words independently or to count phonemes in words.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to determine whether instruction in phonemic segmentation improved kindergarteners' skill in identifying sound parts in a sequence in words. Specifically, the study was designed to examine the effectiveness of three instructional strategies for teaching phonemic segmentation to kindergarten students. A review of the literature indicated that instruction in phonological awareness generally, and phonemic segmentation specifically, has a positive influence on children's skill in identifying sound parts in sequence in words. This research project represented an attempt to determine the instructional strategies that were useful to kindergarten students in acquiring the skill of discriminating sound parts in a sequence in words.

This chapter includes a description of the instruments used in the study. It also includes a description of the population, classroom interventions, hypotheses, methodology, and statistical analyses.

The research project addressed the following hypotheses:

Hypothesis I: There is no significant difference among the control and three experimental kindergarten students' skill in identifying discrete sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test.

Hypothesis II: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in identifying letters of the alphabet as measured by the Alphabet Recognition subtest of the Kindergarten Emergent Reading Assessment.

Hypothesis III: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in identifying initial consonant sounds as measured by the Initial Consonants subtest of the Kindergarten Emergent Reading Assessment.

Hypothesis IV: For each of the four separate groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in matching letters of the alphabet as measured by

the Letter Matching subtest of the Kindergarten Emergent Reading Assessment.

Selection of the Research Sample

The research project was conducted at an elementary school in north central Florida. The student population at the school encompassed a variety of socioeconomic, racial, and ethnic backgrounds. Kindergarten students from four separate classrooms participated in the study.

Before the study was implemented, permission to conduct research in the county school system was obtained. Written permission from parents or guardians was obtained for each kindergarten student who participated in the research project. All students who participated in the study were in their first year of kindergarten. Students who were retained in kindergarten the previous year or who were enrolled in special education programs except speech/language therapy were ineligible to participate. All students were randomly assigned to kindergarten classrooms at the beginning of the school year. Students participating in this study represented a broad range of racial, ethnic, and socioeconomic backgrounds. All students spoke English as their primary language.

Permission to participate in the study was obtained for 81 kindergarten students. Of the 81 participants, 40 were females and 41 were males.

Kindergarten teachers participated in this research project on a voluntary basis. All teachers were certified in early childhood education by the state of Florida. All were experienced kindergarten teachers.

Three of the kindergarten classrooms were assigned randomly to the experimental treatments. The fourth kindergarten classroom served as the control.

Research Design

The research study utilized a four group, randomized (R) classroom, pretest-posttest control group design. There were three experimental treatment groups and one control group. The experimental treatment groups were E1) the IBM Writing to Read system, E2) teacher-directed lessons in phonemic segmentation with auditory cues, and E3) teacher-directed lessons in phonemic segmentation with auditory and visual cues. The fourth group (E4) served as the control. The research design is shown in Table 3-1.

The pretest-posttest control group design controls for most of the threats to internal validity. The students were randomly assigned to kindergarten classes at the beginning of the school year. Kindergarten classes were randomly assigned to the treatment groups or the control group. Therefore, it was assumed that the groups were equal at the beginning of the study. Because the groups were assumed to be equal at the beginning of the study, maturation and history should affect all groups

Table 3-1
Pretest-Posttest Control Group Design

		<u>Pretest</u>			<u>Posttests</u>			
		R	01	X	01	02	03	04
E1 (IBM Writing to Read)		R	01	X	01	02	03	04
E2 (Auditory)		R	01	X	01	02	03	04
E3 (Auditory and visual)		R	01	X	01	02	03	04
E4 (Control)		R	01		01	02	03	04

01= Tunmer-Nesdale Phonological Awareness Test

02= Kindergarten Emergent Reading Assessment - Alphabet Recognition Subtest

03= Kindergarten Emergent Reading Assessment - Initial Consonants Subtest

04= Kindergarten Emergent Reading Assessment - Letter Matching Subtest

equally. Testing was not considered a threat to internal validity in the pretest-posttest control group design.

The same instruments and procedures were used for each of the four groups at the pretest and posttest time periods.

Instrumentation

The instruments selected for use in this research project were designed to measure kindergarten students' skill in identifying discrete sound parts in a sequence in words, letter recognition, initial consonants, and letter matching. The Tunmer-Nesdale Phonological Awareness Test was selected to measure skill in phonemic segmentation.

The Kindergarten Emergent Reading Assessment was selected to measure skill in letter recognition, in identifying initial consonants, and in letter matching. Descriptions of the Tunmer-Nesdale measure and the Kindergarten Emergent Reading Assessment are in the following sections of this chapter.

Measure of Skill in Phonemic Segmentation

Phonological awareness and specifically skill in phonemic segmentation was measured by the Tunmer-Nesdale Phonological Awareness Test. This instrument assesses phonological awareness in young children. It is administered to children individually and is composed of 20 test items. The 20 test items are nondigraph, nonword syllables.

Of the 20 test items, 5 are single short vowel sounds. Another 5 items are consonant-vowel-consonant syllables. The remaining 10 items are vowel-consonant syllables and consonant-vowel syllables.

The Tunmer-Nesdale Phonological Awareness Test requires subjects to demonstrate their skill in identifying discrete sound parts in words through a tapping technique. The measure is presented as a tapping game in which subjects are asked to assist the examiner in tapping out the number of phonemes in each syllable. Each syllable is presented verbally by the examiner.

Prior to administering the Tunmer-Nesdale measure, the examiner demonstrates the tapping technique to the

subject and provides opportunities for practice. If the subject gives an inaccurate response during the practice demonstration, corrective feedback is provided by the examiner. Following this procedure, the examiner presents five more practice items. The subject is then presented with the 20 test items. No corrective feedback is given during the testing.

Measure of Skill in Letter Recognition, Initial Consonants, and Letter Matching

The Kindergarten Emergent Reading Assessment was developed by the Alachua County School Board as a measure of kindergarten students' specific pre-reading skills. The instrument is composed of three subtests: Alphabet Recognition, Initial Consonants, and Letter Matching. It is designed to be administered to small groups of students by the classroom teacher or curriculum specialist at teacher request whenever the teacher judges a child has attained certain specific pre-reading skills. These skills include letter recognition, initial consonant sounds, and letter matching.

Measure of letter recognition. Letter recognition was measured by the Alphabet Recognition subtest of the Kindergarten Emergent Reading Assessment. The subtest is composed of 15 items and includes 7 upper case and 8 lower case letters.

Subjects were presented with a test booklet and writing implement. Following one practice item, the examiner pronounced one letter name at a time. As the

examiner said the letter name, the students marked the letter on the proper line in the test booklet. Corrective feedback was offered by the examiner on the practice item. No corrective feedback was provided on the 15 test items.

Measure of initial consonants. Skill in identifying initial consonants was measured by the Initial Consonants subtest of the Kindergarten Emergent Reading Assessment. The subtest is composed of nine items. Each item tests one consonant sound in the initial position represented in the student test booklet in both upper and lower case form followed by a series of small pictures. Following one practice item, the examiner pronounced each initial consonant sound. As the examiner pronounced each initial consonant sound, the students marked the proper picture whose name began with the designated sound. Corrective feedback was offered by the examiner on the practice item. No corrective feedback was offered on the nine test items.

Measure of letter matching. Skill in matching letters of the alphabet was measured by the Letter Matching subtest of the Kindergarten Emergent Reading Assessment. The subtest is composed of 10 items. Each item has a group of letters, three or four in number, that subjects match with one of four choices in the row. There is one practice item. Corrective feedback was offered by the examiner on the practice item. No corrective feedback was offered on the 10 test items.

Organization of the Study

This investigation was divided into four phases. Phase one was a screening procedure to identify subjects eligible to participate in the study. Phase two was a training period for teachers participating in the study and pretesting of the subjects by the researcher. Phase three was the instructional implementation phase of the project that occurred over a period of eight weeks. Phase four included posttesting of the subjects by the researcher and the school's Curriculum Resource Teacher.

Screening (Phase One)

A screening procedure was used to determine subject eligibility to participate in the study. Student records were reviewed by the researcher to determine if they were enrolled in special education classes with the exception of speech/language therapy. Student language surveys were reviewed to ensure that English was the primary language of the student. Parent or guardian permission to participate in the study was sought for students who A) were in their first year of kindergarten, B) were not enrolled in any special education class with the exception of speech/language therapy, and C) spoke English as their primary language. The consent form signed by parents or guardians giving permission for their child to participate in the study is in Appendix A.

Teacher Training Procedures (Phase Two)

The teacher training that occurred took place during one week. The teachers using the teacher-directed classroom lessons were trained individually by the researcher. Training consisted of a description of the research project and an in-depth discussion of the concept of phonemic segmentation. Scripted lessons in phonemic segmentation were modeled and demonstrated. Teacher questions were answered during the training session. Following the training, teachers practiced individually with the scripted lessons and materials for their corresponding intervention. The teacher using the IBM Writing to Read program as the intervention had been trained earlier by IBM personnel. No further training in phonemic segmentation was provided to this teacher.

The teacher of the control classroom received no training in the concept of phonemic segmentation. This teacher was not trained in the IBM Writing to Read program.

Instructional Implementation (Phase Three)

For each condition, teachers implemented their corresponding treatments for eight weeks, four days per week. Students in the treatment classrooms received teacher-directed instruction in phonemic segmentation with auditory cues, or teacher-directed instruction in phonemic segmentation with auditory and visual cues, or participated in the IBM Writing to Read program four days

per week. Students in the control classroom received no instruction in phonemic segmentation with auditory and visual cues, or participated in the IBM Writing to Read program four days per week. Descriptions of each experimental treatment are in the following sections of this chapter.

IBM Writing to Read Program (E1). The treatment for the first experimental group consisted of participation in the school's IBM Writing to Read laboratory four times per week for eight weeks. The teacher was trained in the Writing to Read program before the implementation of this research project by IBM personnel.

The 10 instructional cycles in the Writing to Read program are designed to teach students the 42 phonemes that comprise the sounds of the English language. Each cycle provides instruction on three words and the phonemes that make up those words. Each cycle provides approximately 12-15 minutes of computer-assisted instruction per lesson. The instructional cycles are delivered by a computer system that is intended to guide students to the realization that by learning the 42 phonemes and then combining and recombining them, any word in the English language can be written. No other instruction in phonemic segmentation was offered to students in this classroom.

Teacher-directed instruction in phonemic segmentation with auditory cues (E2). Teacher-directed lessons in

phonological awareness and specifically in phonemic segmentation were developed by the researcher. A review of the literature indicated that instructional strategies in phonemic segmentation are effective when they help kindergarten students learn to discriminate the sounds in words in a sequence. It also indicated that real as opposed to nonwords should be utilized. Training in phonological awareness should focus on the auditory channel.

Each lesson developed by the researcher for this treatment group utilized real words that were composed of one, two, or three sounds in the vowel-consonant (at), consonant-vowel (so), or consonant-vowel-consonant pattern (mat). Initial lessons concentrated on segmenting only the beginning sound in the target word (m - at). Later lessons emphasized discriminating each sound in the target word (m - a - t).

Each lesson required the teacher to provide an initial review of the concept of phonemic segmentation and how and why it could prove useful to kindergarten students. Each lesson provided several demonstrations of phonemic segmentation to the students by first saying the target word in a normal way (mat) and then stretching it so each sound was made explicit (mmm - aaa - ttt). The students repeated each word in its normal form and its stretched form after the teacher demonstration. The lessons contained between 15-20 target words for the

teacher to use in each instructional session.

Occasionally, the students would be asked to suggest a word for the class to segment. The lessons concluded with a review of the lesson and of the concept of phonemic segmentation.

All lessons in this treatment were teacher-directed through the auditory channel only. No letters, words or other symbols were employed in the lessons. Students neither saw nor wrote any letters, words or other symbols. There were no follow-up worksheets or other activities to provide practice in the skill of phonemic segmentation. All lessons were delivered to the whole class during instructional periods of 12-15 minutes and were scripted for the teacher. Lessons are in Appendix C.

Teacher-directed instruction in phonemic segmentation with auditory and visual cues (E1). Teacher-directed lessons in phonemic segmentation were developed by the researcher that utilized both auditory and visual cues. Elkonin's research (Downing, 1963) indicated that training in phonemic segmentation may be facilitated when visual prompts or cues are available to the students. The prompts used by Elkonin in his research were markers that denoted each separate sound in a word. The markers were placed before the students as each sound was made explicit in a word.

Each lesson developed by the researcher for this treatment group utilized real words that were composed of

one, two, or three sounds in the vowel-consonant (at), consonant-vowel (so), or consonant-vowel-consonant pattern (mat). Also visual prompts were developed to accompany each lesson. The visual prompts consisted of cardboard markers, 2 x 4 inches in size with velcro strips attached. The markers could be attached to a cardboard chart 2 x 3 feet in size that was placed in front of the students. The markers were attached in a linear fashion to the chart to designate each sound part in the target word. For example, in the target word at, two markers were used to designate the two sounds /a/ and /t/. In the target word mat, three markers were used to designate the three sounds, /m/, /a/, and /t/. Markers were placed on the chart as each sound was segmented.

Initial lessons concentrated on segmenting only the beginning sound in the target word (m - at) and no markers were used. Later lessons emphasized discriminating each sound in the target word (m - a - t) and markers were used for each sound.

Each lesson required the teacher to provide an initial review of the concept of phonemic segmentation and how and why it could prove useful to kindergarten students. Each lesson provided several demonstrations of phonemic segmentation to the students by first saying the target word in a normal way (mat) and then stretching it so each sound was made explicit (mmm - aaa - ttt). As each sound was made explicit, the teacher placed a marker

on the chart as a visual prompt for the students. The students repeated each word in its normal form and its stretched form with markers following the teacher demonstration. The lessons contained between 15-20 target words for the teacher to use in each instructional lesson. Occasionally, the students would be asked to suggest a word for the class to segment. Markers were used for student generated words also. Each lesson concluded with a review of the lesson and of the concept of phonemic segmentation.

All lessons in this treatment were teacher-directed through both the auditory and the visual channels. No letters or words were used in the lessons. Only markers served as visual cues. There were no follow-up worksheets or other activities to provide practice in the skill of phonemic segmentation. All lessons were delivered to the whole class during instructional periods of 12-15 minutes and were scripted for the teacher. Lessons are in Appendix D.

Control classroom (E4). Students in the control classroom received no teacher-directed instruction in the skill of phonemic segmentation. They did not participate in the school's IBM Writing to Read laboratory.

All four classrooms in this research project participated in the regular kindergarten curriculum developed and adopted by the county school system. Teachers of the four classes were asked not to discuss the

research project with each other. The researcher observed each teacher at least once a week for the duration of the eight week project. These informal and unscheduled observations indicated to the researcher that the classroom interventions were being implemented by the teachers according to the scripted lesson format.

Posttesting (Phase Four)

At the end of the eight week instructional implementation phase, each participant was individually posttested by the researcher using the Tunmer-Nesdale Phonological Awareness Test. In addition, all subjects in the study were administered the Kindergarten Emergent Reading Assessment by the school's Curriculum Resource Teacher. This instrument is administered in small groups of 8-10 students by the Curriculum Resource Teacher as part of the evaluation process of kindergarten students in this school district. All posttesting took place within 10 days of the completion of the implementation phase of the research project.

Data Analysis

An analysis of covariance (ANCOVA) utilizing pretest scores as the covariate was performed to determine significant statistical differences. The level of significance was set at .05. The dependent variable was the posttest scores. In addition, Pearson Product Moment correlation coefficients were calculated between the

phonological awareness test and the other outcome measures.

CHAPTER IV

ANALYSIS OF THE DATA

This study was to determine whether instruction in phonemic segmentation improved kindergartners' skill in identifying sound parts in a sequence in words. Specifically, the study was designed to examine the effectiveness of three instructional strategies for teaching phonemic segmentation to kindergarten students.

The data were collected on 81 students from four kindergarten classrooms in an elementary school in north central Florida. All subjects who were pretested were also posttested. There was no mortality in this research project. Raw data on all 81 subjects is in Appendix E.

Students were pretested by the examiner using the Tunmer-Nesdale Phonological Awareness Test. They were posttested by the examiner using the same instrument. Also, they were posttested on their skill in recognizing letters, in identifying initial consonants, and in letter matching using the Kindergarten Emergent Reading Assessment. This measure was administered by the Curriculum Resource Teacher at the school.

Classroom teachers implemented the instructional strategies in phonemic segmentation over a period of eight weeks. One teacher (group E1) had been trained earlier in the IBM Writing to Read program. Two teachers were trained by the researcher in delivering lessons in phonemic segmentation with auditory cues (group E2) or with auditory and visual cues (group E3). They were trained before the implementation phase of the study. The teacher of the control classroom (group E4) received no training in phonemic segmentation.

Results

Each hypothesis was stated in the null form. The alpha level of significance was set at .05. Data relevant to each hypothesis are presented, discussed, and summarized in this chapter.

Kindergarten Students' Skill in Identifying Discrete Sound Parts in a Sequence in Words

The analysis of covariance (ANCOVA) was used to determine treatment effects. The students' pretest scores on the Tunmer-Nesdale Phonological Awareness Test served as the covariate. The independent variable was the three interventions: (E1) the IBM Writing to Read program, (E2) teacher-directed lessons with auditory cues, (E3) teacher-directed lessons with auditory and visual cues, and (E4) the control classroom, (that is, no intervention).

Hypothesis 1: There is no significant difference among the control and three experimental kindergarten students' skill in identifying discrete sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test.

Table 4-1 presents pretest mean scores, standard deviations, and adjusted posttest mean scores for each of the four treatment groups. It presents the same information for the total sample.

An analysis of covariance (ANCOVA) using group means as the unit of analysis from the four treatment groups was performed on the data. ANCOVA provided a test for significant differences between the experimental and control groups for the first hypothesis. Pretest scores on the Tunmer-Nesdale Phonological Awareness Test served

Table 4-1
Summary by Treatment Group and Total Sample of the Tunmer-Nesdale Phonological Awareness Test

Group	N	Pretest Mean	Standard Deviation	Posttest LS Mean
E1 (IBM WTR)	21	10.238	3.884	13.754
E2 (Aud)	21	8.952	3.368	15.139
E3 (Aud & Vis)	19	9.000	3.872	18.196
E4 (Control)	20	9.800	4.618	11.974
Total Sample	81	9.506	3.918	N/A

as the covariate. The hypothesis was tested at the .05 level of significance. The results of the data analysis are presented in Table 4-2.

Testing the ANCOVA Assumption of Homogeneity of Regression Slopes

The first step in the ANCOVA was to test the assumption of homogeneity of regression slopes. A significance level of .05 was used in this research project to test this assumption.

The data from the two administrations of the Tunmer-Nesdale instrument did not meet the assumption of homogeneity of regression slopes for the three experimental groups and the control group. A significant interaction was noted. The regression slopes of the experimental groups and the control group were significantly different. The results are summarized in Table 4-3.

When a significant interaction is noted as evidenced by heterogeneity of regression slopes, ANCOVA with simple pairwise comparisons is no longer appropriate. The question now changes to whether treatment effects on the dependent variable change for certain values of the covariate. The Johnson-Neyman procedure was selected to determine the regions of the covariate where significant differences occurred between treatments on the dependent variable.

Table 4-2
Summary of Analysis of Covariance on the Tunmer-Nesdale Phonological Awareness Test

Source	df	SS	MS	F	P
Model	7	856.2701	122.3243	14.08	0.0001*
Error	73	634.1989	8.6876		
Total	80	1490.4691			

*Significant at the .05 level.

Table 4-3
Tests for Homogeneity of Regression Slopes for ANCOVA

Source	df	F	P
TMT	3	12.65	.0001
Pretest	1	49.21	.00001
Pretest*TMT	3	3.80	.0137*

*Significant at the .05 level.

The Johnson-Neyman procedure indicated a region of non-significance between values of pretest scores -5.39 and 12.77. Within this region, the performance of Group E1 (IBM Writing to Read) and Group E4 (control) did not differ significantly. Among students who scored more than 12.77 on the pretest measure, Group E1 (IBM Writing to Read) performed better than Group E4 (control). Figure 1

shows the regression lines for each of the four treatment groups.

The null hypothesis for Hypothesis I could not be tested for statistical significance. A significant pretest by treatment interaction occurred.

Kindergarten Students' Skill in Identifying Discrete Sound Parts in a Sequence in Words and Their Skill in Identifying Letters of the Alphabet

Pearson Product Moment correlation coefficients were calculated to determine the relationship between students' skill in phonemic segmentation and their skill in identifying letters of the alphabet. The level of significance was set at .05. The associated probabilities were compared to the alpha level of .05 to determine whether the observed correlations could occur by chance if the true value of the correlations in the population were .00. Results of the Pearson Product Moment correlations for the total sample and for the four treatment groups are in Appendix F.

Unadjusted posttest scores for each treatment group on the Tunmer-Nesdale Phonological Awareness Test and the Letter Recognition subtest of the Kindergarten Emergent Reading Assessment were used to calculate the correlation coefficients. Means and standard deviations for each of the outcome measures are shown in Table 4-4.

Hypothesis II: For each of the four separate treatment groups, there is no significant relationship between skill in identifying sound parts in a sequence in

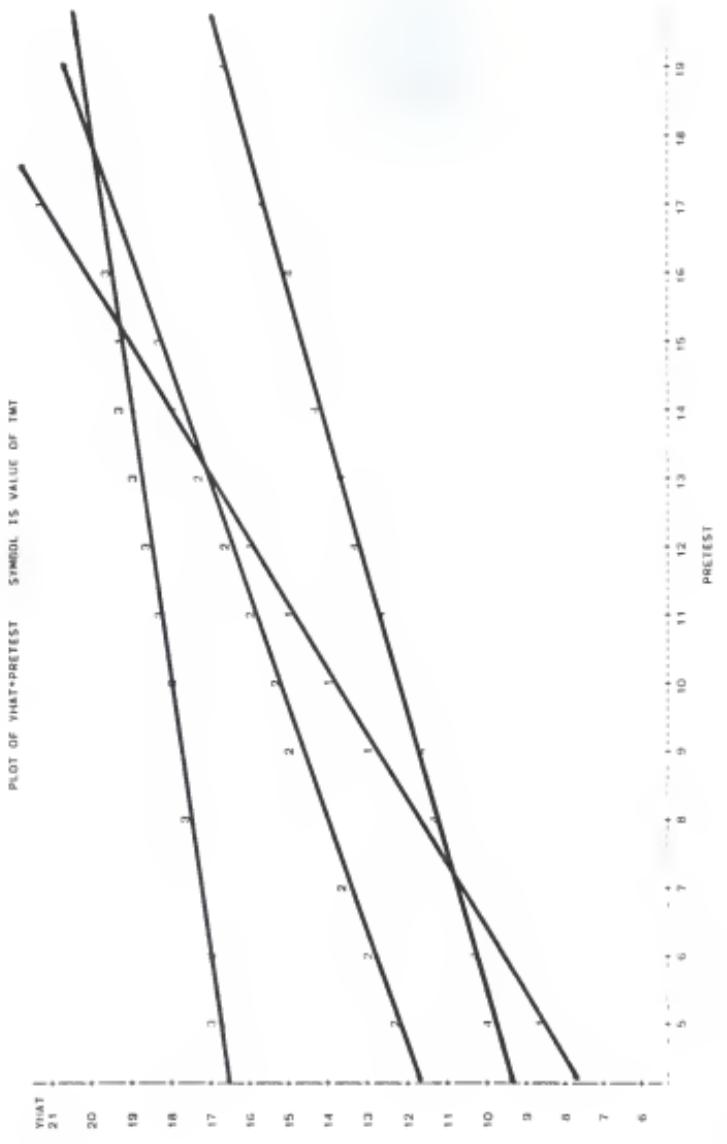


Figure 1
Aptitude Treatment Interaction

words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in identifying letters of the alphabet as measured by the Alphabet Recognition subtest of the Kindergarten Emergent Reading Assessment.

Table 4-5 summarizes the correlation coefficients for the four treatment groups on skill in phonemic segmentation and skill in letter recognition. Results of the Pearson Product Moment correlation coefficients for the four treatment groups indicated no statistically significant relationship between students' skill in phonemic segmentation and their skill in letter recognition. The null hypothesis, therefore, could not be rejected.

Kindergarten Students' Skill in Identifying Discrete Sound Parts in Sequence in Words and Their Skill in Identifying Initial Consonants

Pearson Product Moment correlation coefficients were calculated to determine the relationship between students' skill in phonemic segmentation and their skill in identifying initial consonants. The level of significance was set at .05. The associated probabilities were compared to the alpha level of .05 to determine whether the observed correlations could occur by chance if the true value of the correlations in the population were .00. Results of the Pearson Product Moment correlation coefficients for the total sample and for the four separate treatment groups are in Appendix F.

Table 4-4

Means (and Standard Deviations) for the Four Treatment Groups on the Four Outcome Measures

Treatment Groups				
	E1	E2	E3	E4
Tunmer-Nesdale Phonological	14.1904 (4.8334)	14.8095 (3.4585)	17.8947 (2.4920)	12.5000 (4.2460)
Letter Recognition Subtest	14.4285 (1.1649)	14.2380 (0.8890)	14.4736 (0.7723)	14.5000 (0.7608)
Initial Consonants Subtest	8.4761 (1.2497)	8.4285 (1.0757)	8.7368 (0.7334)	8.3500 (1.5985)
Letter Matching Subtest	9.8095 (0.6796)	9.7619 (0.6248)	9.7368 (0.6533)	9.9000 (0.3077)

Group E1 IBM Writing to Read program

Group E2 Auditory cues

Group E3 Auditory and visual cues

Group E4 Control

Table 4-5

Correlation Coefficients (and Associated Probabilities) for Skill in Phonemic Segmentation and Skill in Letter Recognition by Treatment Groups

Treatment Groups				
E1 IBM WTR	E2 Aud	E3 Aud & Vis	E4 Control	
0.0114 (0.9608)	-0.2284 (0.3193)	0.1716 (0.4822)	0.4317 (0.0573)	

Significant at the .05 level.

Unadjusted posttest scores for each treatment group on the Tunmer-Nesdale Phonological Awareness Test and the Initial Consonants subtest of the Kindergarten Emergent Reading Assessment were used to calculate the correlation coefficients. Mean scores and standard deviations for each of the four outcome measures by treatment group are shown in Table 4-4.

Hypothesis III: For each of the four separate treatment groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in identifying initial consonants as measured by the Initial Consonants subtest of the Kindergarten Emergent Reading Assessment.

Table 4-6 summarizes the correlation coefficients for the four treatment groups for skill in phonemic segmentation and skill in identifying initial consonants. Results of the Pearson Product Moment correlation coefficients for the four treatment groups indicated a statistically significant relationship between students' skill in phonemic segmentation and their skill in identifying initial consonants for treatment group E1, the IBM Writing to Read program. The null hypothesis was, therefore, rejected.

Table 4-6

Correlation Coefficients (and Associated Probabilities)
for Skill in Phonemic Segmentation and Skill in
Identifying Initial Consonants by Treatment Groups

E1 IBM WTR	E2 Aud	E3 Aud & Vis	E4 Control
0.6629 (0.0011)*	0.1036 (0.6547)	0.1663 (0.4961)	0.3485 (0.1320)

Significant at the .05 level.

Kindergarten Students Skill in Identifying Discrete Sound
Parts in Sequence in Words and Their Skill in Letter
Matching

Pearson Product Moment correlation coefficients were calculated to determine the relationship between students' skill in phonemic segmentation and their skill in letter matching. The level of significance was set at .05. The associated probabilities were compared to the alpha level of .05 to determine whether the observed correlations could occur by chance if the true value of the correlations in the population were .00. Results of the Pearson Product Moment correlation coefficients for the total sample and for the four treatment groups are in Appendix F.

Unadjusted posttest scores for each treatment group on the Tunmer-Nesdale Phonological Awareness Test and the Letter Matching subtest of the Kindergarten Emergent Reading Assessment were used to calculate the correlation

coefficients. Mean scores and associated standard deviations for each of the four outcome measures by treatment group are shown in Table 4-4.

Hypothesis IV: For each of the four separate treatment groups, there is no significant relationship between skill in identifying sound parts in a sequence in words as measured by the Tunmer-Nesdale Phonological Awareness Test and skill in letter matching as measured by the Letter Matching subtest of the Kindergarten Emergent Reading Assessment.

Table 4-7 summarizes the correlation coefficients for the four treatment groups on skill in phonemic segmentation and skill in letter matching. Pearson Product Moment correlation coefficients for the four treatment groups indicated no statistically significant relationship between students' skill in phonemic segmentation and skill in letter matching. The null hypothesis, therefore, could not be rejected.

Table 4-7

Correlation Coefficients (and Associated Probabilities) for Skill in Phonemic Segmentation and Skill in Letter Matching by Treatment Groups

Treatment Groups			
E1 IBM WTR	E2 Aud	E3 Aud & Vis	E4 Control
0.3312 (0.1424)	-0.1377 (0.5517)	0.0502 (0.8380)	0.3324 (0.1498)

Significant at the .05 level.

Summary

In summary, the null hypothesis for Hypothesis I could not be tested for statistical significance, because significant pretest by treatment group interaction occurred. There was a significant difference among the four treatment groups in kindergarten students' skill in identifying discrete sound parts in a sequence in words. Students in the three experimental groups showed significant gains on posttest scores on the phonological awareness measure. A visual inspection of the regression lines of posttest on pretest for the four treatment groups indicated that all three treatment groups performed better than the control group on the phonological awareness posttest.

Student gains on the phonological awareness posttest were not equal among the three experimental groups. Those students with good entry skill in phonemic segmentation profited from the IBM writing to read program. Students in the auditory and visual cues classroom, however, showed greatest gains between adjusted pretest scores and posttest scores on the phonological awareness measure. Students in the auditory cues only classroom also showed good gains between adjusted pretest scores and posttest scores.

The null hypothesis for Hypothesis II could not be rejected. There was no statistically significant relationship between kindergarten students' skill in

phonemic segmentation and their skill in letter recognition.

The null hypothesis for Hypothesis III was rejected. For treatment group E1, the IBM Writing to Read program, there was a statistically significant relationship between kindergarten students' skill in phonemic segmentation and their skill in identifying initial consonants.

The null hypothesis for Hypothesis IV could not be rejected. There was no statistically significant relationship between kindergarten students' skill in phonemic segmentation and their skill in letter matching.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Summary

This purpose of this study was to investigate whether instruction in phonemic segmentation improved kindergarten students' skill in identifying sound parts in a sequence in words. Specifically, the effectiveness of three instructional methods for teaching phonemic segmentation to kindergarten students was examined.

A total of 81 students from four kindergarten classrooms participated in the project. Kindergarten classes were randomly assigned to four treatment groups. There were three experimental groups and one control group.

All students in the study were pretested and posttested by the examiner using the Tunmer-Nesdale Phonological Awareness Test. They were also posttested by the school's Curriculum Resource Teacher using the Kindergarten Emergent Reading Assessment. This assessment is composed of three subtests: the Letter Recognition subtest, the Initial Consonants subtest, and the Letter Matching subtest.

The data from the pretest and posttests were analyzed using the analysis of covariance (ANCOVA) procedure. The ANCOVA tested for significant differences between experimental and control groups on the Tunmer-Nesdale Phonological Awareness Test. The pretest served as the covariate. The null hypothesis was tested at the .05 level of significance.

Prior to interpreting the statistical data from the ANCOVA, a test for homogeneity of regression slopes was performed. This procedure indicated a significant interaction of pretest on posttest by treatment group for Group E1 (IBM Writing to Read) and Group E4 (control). ANCOVA with simple pairwise comparisons was no longer appropriate. Instead, the Johnson-Neyman procedure was selected to determine the regions of the covariate where significant differences occurred between treatments on the dependent variable for Group E1 (IBM Writing to Read) and Group E2 (control).

Analysis of the data using the Johnson-Neyman procedure indicated that students' success was dependent on the degree of phonemic awareness they possessed at the pretest occasion. The initial skill level of the students interacted with the type of treatment to which they were exposed.

Pearson Product Moment correlation coefficients were calculated to determine if a statistically significant relationship existed between students' skill in phonemic

segmentation and their skill in letter recognition. The level of significance was set at .05. Analysis of the data indicated no statistically significant relationship between students' skill in phonemic segmentation and their skill in letter recognition due to little variance in the Letter Recognition subtest scores.

Pearson Product Moment correlation coefficients were calculated to determine if a statistically significant relationship existed between students' skill in phonemic segmentation and their skill in identifying initial consonants. The level of significance was set at .05. Analysis of the data indicated a statistically significant relationship between students' skill in phonemic segmentation and their skill in identifying initial consonants for treatment group E1, the IBM Writing to Read program.

Pearson Product Moment correlation coefficients were calculated to determine if a statistically significant relationship existed between students' skill in phonemic segmentation and their skill in letter matching. The level of significance was set at .05. Analysis of the data indicated no statistically significant relationship between students' skill in phonemic segmentation and their skill in letter matching due to little variance in the Letter Matching subtest scores.

Conclusions

As a result of this study, the following conclusions were reached:

1. Students' skill in phonemic segmentation may be significantly improved depending on their initial level of phonological awareness and the type of instruction provided.

2. Students' skill in phonemic segmentation did not have a statistically significant relationship to their skill in letter recognition for any of the four methods of instruction.

3. Students' skill in phonemic segmentation had a statistically significant relationship to their skill in identifying initial consonants depending on the type of instruction used to teach phonological awareness. The students who received instruction through the IBM Writing to Read program demonstrated a strong correlation between their skill in phonemic segmentation and their skill in identifying initial consonant sounds. There was no significant correlation between phonemic segmentation and skill in identifying initial consonants for the other methods of instruction.

4. Students' skill in phonemic segmentation did not have a statistically significant relationship to their skill in letter matching for any of the four methods of instruction.

Discussion

The teachers who volunteered to participate in this research project indicated their willingness to try new and different instructional techniques. The teachers were not incorporating instruction in phonological awareness in their kindergarten curricula prior to the implementation of this study. They were interested in including lessons in phonemic analysis in their kindergarten programs. Their willingness to participate was an indication of their dedication to their students and their desire to find new ways of helping children learn important emergent reading skills.

The researcher provided reinforcement throughout the implementation phase of the study. This was accomplished by visiting the classrooms, discussing the project individually with the teachers, and sending them personal notes expressing appreciation for their efforts. At the completion of the implementation phase, the teachers inquired as to whether they could incorporate lessons in phonemic segmentation in future kindergarten classes. They found the interventions to be both instructional and enjoyable for their students.

The teachers had been unaware of the type of interventions being implemented in the other kindergarten classrooms in this study. At an informal meeting at the completion of the study, the teachers shared with each other the type of treatment they had utilized in their

classrooms. The teacher of the control classroom was interested in the concept of phonemic segmentation and its implications for instruction as an important emergent reading skill. All three instructional methods were intriguing to her.

The teacher in the auditory cues classroom along with the teacher in the auditory and visual cues classroom expressed interest in the IBM Writing to Read laboratory as an instructional method. All four teachers were hopeful that instruction in phonological awareness would facilitate the academic growth of their low achieving students.

In summary, all four kindergarten teachers expressed satisfaction with their participation in the study. The teachers in the three treatment classrooms felt they had expanded their knowledge in the area of emergent reading skills. The teacher in the control classroom expressed interest in learning more about the concept of phonemic segmentation.

Educational Implications

The three experimental groups in the project offered instruction in phonemic segmentation to all students in the classrooms. The methodology of instruction was the variable in this study. The similarities and the differences in instruction between the three treatment

groups may offer some insight into effective teaching for young children in the area of phonological awareness.

All three classrooms used the auditory mode to provide the instruction. Classroom E1 (the IBM Writing to Read program) provided instruction by means of a computer program. In small groups of eight working in pairs on computers, the IBM Writing to Read program took students through ten cycles of instruction. Each cycle provided instruction in three or four of the 42 phonemes of the English language.

Classroom E2 (auditory cues) and E3 (auditory and visual cues) also provided instruction in phonemic segmentation through the auditory channel. Teachers delivered instruction through total group lessons in discriminating sound parts in sequence in words.

Two of the three experimental classrooms provided visual cues in addition to the auditory ones. Classroom E1 (the IBM Writing to Read program) associated phonemes with letters in the computer program. This was the only group that utilized letters in conjunction with instruction in phonemic segmentation, a technique recently recommended by Byrne and Fielding-Barnsley (1990) for the preliterate child. It also associated pictures with words, i.e., a picture of cat, the letters c - a - t to indicate the phonemes, and the word "cat" written as a whole.

Classroom E3 (auditory and visual cues) associated sound parts in words with markers placed in sequence on a chart as the target word was segmented. This instructional technique was discussed and recommended by Elkonin (Downing, 1973) as efficacious for the young child. The markers stood for the sounds in the words, not for letters. Letters were not used in this treatment group.

This study verified Elkonin's recommendation for the absence of letter cues in teaching phonemic segmentation to young children. Students in the two classrooms that employed visual cues (El IBM Writing to Read and E3 auditory and visual cues) showed good gains on the posttest measure of phonological awareness. Students in the classroom that employed auditory and visual cues (E3) showed the greatest gains in student scores between the pretest and the posttest on the phonological measure.

Further, the results of this study do not indicate that letters must be the visual cues as recommended by Byrne and Fielding-Barnsley. Letters may, in fact, confound the issue of phonemic segmentation. This study does support the use of letters for helping students to identify initial consonants. Students in classroom El (IBM Writing to Read) performed well on the initial consonants measure at least in part because this program associates letters with phonemes as it teaches phonemic segmentation in a more incidental way.

All three experimental classrooms involved the students in participating orally in the segmentation process. Group E1 (the IBM Writing to Read program) students were directed to repeat the segmentation aloud following a demonstration on the computer. Group E2 (auditory cues) and Group E3 (auditory and visual cues) required students to respond orally following the teachers' demonstrations, to orally segment words on their own, or to orally segment words along with the teacher.

Participation by students in the oral segmentation was monitored by the teachers in both Group E2 and E3. An aide was present to assist with the computer program for Group E1 (IBM Writing to Read). There was no assurance that students in this group actually participated in the oral segmentation as directed by the computer program.

Students in Group E1 (the IBM Writing to Read program) were the only ones who employed paper and pencil activities in this project. Following the computer-assisted instruction, they completed one or two pages in a workbook correlated to that day's lesson. The pages reviewed letter-sound correspondence of the 42 phonemes of the English language.

Students who demonstrated skill in phonemic segmentation on the pretest achieved remarkably well in the IBM Writing to Read program. Students who scored 13 or more points out of a possible 20 points on the pretest profited from instruction in the IBM Writing to Read

program. Their skill in phonological analysis at the end of the implementation phase of the study was very good. Their scores on the Tunmer-Nesdale Phonological Awareness Test attested to their growth.

Students who demonstrated little or no skill at phonemic segmentation on the pretest made little progress toward mastering that skill in the IBM Writing to Read treatment group. In fact, they would have done just as well in the control classroom where no direct instruction in phonemic segmentation was taking place. The IBM Writing to Read program appeared more instructionally appropriate for those students who demonstrated solid initial level of skill in phonological awareness prior to beginning the Writing to Read program. Given the costliness of the IBM Writing to Read program, other benefits would have to be present to the lower achieving students in order to make this program worthwhile and cost effective.

Correlation coefficients between the letter recognition subtest and the phonological awareness posttest indicated no significant relationship among all four treatment groups. It is possible that this phenomenon can be partially explained by the subtest itself. Since there were only 15 items on the letter recognition subtest, it is possible that the ceiling was simply too low on the subtest leaving little room for variance. More test items might have provided better

differentiation among subtest scores and consequently more meaningful correlational data.

Correlation coefficients between the initial consonants subtest and the posttest from the phonological awareness instrument indicated a significant relationship for students in the El group (IBM Writing to Read program). Posttest scores on both instruments were strongly correlated. It is important to recall that the IBM Writing to Read program utilized letters and pictures in association with phonemes during instruction. The initial consonants subtest of the Kindergarten Emergent Reading Assessment used pictures to assess students' skill in identifying beginning consonant sounds. The method of instruction closely paralleled the method of assessment. This is one possible explanation of the strong correlation between the two test scores.

Correlation coefficients between the letter matching subtest and the phonological awareness posttest indicated no significant correlations among all four treatment groups. Again, it is possible that the explanation lies in the small number of items on the letter matching subtest leaving little room for variance. There were 10 test items, perhaps too small a number of items to differentiate among subtest scores. A larger pool of test items might have provided for better differentiation among scores and consequently for more meaningful correlational data.

Recommendations for Further Research

Based on the findings of this project, the following recommendations for further research are made:

1. Differentiated instruction should be investigated for those students who demonstrate little initial skill in phonemic segmentation on a pretest measure. These students may need more intensive direct instruction to gain mastery of this skill.

2. Research should be conducted to determine whether sex, race or socio-economic status is a factor in young students' skill in mastering phonemic segmentation.

3. The instructional methodology of Group E3 (auditory and visual cues) should be replicated in a study to determine its efficacy with preliterate students who show some initial skill in phonemic segmentation. A research design that incorporated the IBM Writing to Read program and the auditory-visual cues instructional approach might shed some light on the appropriateness of instructional methods for this group of students.

4. Research should be conducted to determine if instruction in phonemic segmentation is facilitative to the older disabled reader. A further question might be to determine what kind of instruction is most appropriate for students who are reading disabled.

5. Research should be conducted to determine the effects of instruction in phonemic segmentation on first grade reading achievement.

In summary, students in the classroom that employed both auditory and visual skills showed the greatest gains between pretest and posttest on the phonological measure. The IBM Writing to Read program seemed to work very well for preliterate students with good initial skill in phonemically segmenting words. It was not efficacious for students with little or no initial skill in this area. Students with some or little initial skill in phonemic segmentation did as well in the control classroom with no instruction in phonological awareness as they did in the IBM Writing to Read program.

None of the treatment groups' posttest scores on the phonological awareness measure showed any correlation with their scores on letter recognition. Only one group in the study showed a strong correlation between phonemic segmentation and initial consonants. That was the IBM Writing to Read program. None of the treatment groups' posttest scores on the phonological awareness measure showed any correlation with their scores on letter matching.

The implications of this study are that phonemic segmentation can be taught to the preliterate student. The type of instruction that is most effective for students may depend on students' initial skill in phonemically segmenting words. More study is needed to determine the type of instruction in phonemic segmentation

that is effective for the student with little initial skill and the student with some initial skill.

APPENDIX A

PARENT/GUARDIAN LETTER AND PARENT PERMISSION FORM

PARENT/GUARDIAN LETTER

Dear Parents,

As a graduate student at the University of Florida, I am preparing to do the research for my dissertation. For this project, I need to gather information on young children's ability to hear sound parts in words. I will administer the Tunmer-Nesdale Phonological Awareness Test to each student involved in the study. This test takes approximately 5-10 minutes to administer to each child.

The children will be tested by me after their classroom work has been completed. Responses may be recorded on audio tape. Children will be tested in the early fall and again in the late fall. Taking the test should be an enjoyable experience for the children.

All results will be used for research purposes only and children's responses will be coded. Individual student scores will be kept confidential to the extent provided by law. Only group scores will be reported. Results of the study will be made available upon request.

You may withdraw permission for your child's participation in the study or for use of your child's data at any time. Participation or non-participation will have no effect on your child's grade in any class.

Please contact me at 376-6972 if you have any questions or concerns. Please sign the attached permission form and return to your child's teacher tomorrow.

Thank you.

Sincerely,

Barbara Buys

PARENT PERMISSION FORM

I have read and I understand the procedure described in the attached letter. I agree to allow my child _____ to participate in Barbara Buys' phonological awareness study and I have received a copy of the description of the project.

Signatures

Parent/Guardian _____ **Date** _____ **2nd Parent/Witness** _____ **Date** _____

APPENDIX B
INSTRUMENTS

Tunmer-Nesdale
PHONOLOGICAL Awareness Test

Directions

The examiner says to the child:

"We are going to play a tapping game. I'm going to say some pretend words, and tap them after I say them. Listen carefully, so you'll find out how to play the game. The first pretend word is sif. (The examiner taps three times.) I tapped three times for sif because there were three sounds, "sss," "iii," and "fff." I tapped one time for "sss" (tap), one time for "iii" (tap), and one time for "fff." Here's another one, ev. (The examiner taps twice.) I tapped two times for ev because there were two sounds, "eee," and "vvv." I tapped one time for "eee" (tap), and one time for "vvv." (tap). When the pretend word is u (tap), I only tap one time, because there is only one sound. See the way the game is played? For every sound I say, I give a tap. Now I want you to do it. Say sif and tap it. Good."

Corrective feedback is provided if the child gives an incorrect response. The examiner then presents the child with five more practice items: ziv, ug, fis, e and ak. Corrective feedback is provided for each incorrect response. Then the examiner says:

"Now we are going to play the real game. I'll say a pretend word, but I won't tap it because you know how to

play the game yourself. So you say the word after me and then tap it."

The child is then presented with twenty (20) test items. No corrective feedback is given. Scoring is based on the number of items tapped correctly. Test items are:

1) da	11) ig
2) ez	12) sug
3) o	13) vo
4) tiv	14) u
5) fu	15) ab
6) a	16) dez
7) os	17) uk
8) baf	18) i
9) e	19) pok
10) pe	20) ti

Tunmer - Nesdale
Phonological Awareness Test
Score Sheet

Name	Teacher	Birthdate	Sex	Race
Pretest date:		Posttest date:		
1. da ___		1. da ___		
2. ex ___		2. ez ___		
3. o ___		3. o ___		
4. tiv ___		4. tiv ___		
5. fu ___		5. fu ___		
6. a ___		6. a ___		
7. os ___		7. os ___		
8. baf ___		8. baf ___		
9. e ___		9. e ___		
10. pe ___		10. pe ___		
11. ig ___		11. ig ___		
12. sug ___		12. sug ___		
13. vo ___		13. vo ___		
14. u ___		14. u ___		
15. ab ___		15. ab ___		
16. dez ___		16. dez ___		
17. uk ___		17. uk ___		
18. i ___		18. i ___		
19. pok ___		19. pok ___		
20. ti ___		20. ti ___		

Kindergarten Emergent Reading Assessment



School Board of Alachua County

Student Name: _____

Date: _____

Alphabet Recognition	12/15	_____
Initial Consonants	7/9	_____
Letter Matching	8/10	_____

Section 1



practice

e s d c a



N Y E V X

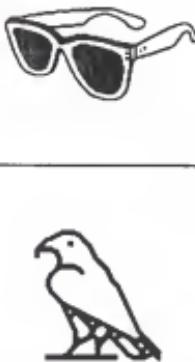


n v u y w



O G C Q D

	q b g j p
	E B R P S
	d b l h f
	F K E I H

	X S r z v
	Z T J M L
	i a o e c
	U I H L T



m y n h w



W O C G Q



s d x r t



X R K P N

Section 2

R r	practice			
P p				
W w				
M m				
D d				
N n				

C c			
H h			
F f			
S s			

Initial Consonants (7/9) _____

Section 3

	jw	practice	qw	wj	jw
	tk		kt	tb	tk
	gs		gs	sg	gc
	nb		bn	nb	nb

	ei	ie	ei	el
	dmh	hmd	dmh	dmk
	yna	nya	yma	yna
	gzo	gzo	ogz	pzo

	mki	nki	mki	kim
	zjr	rjz	zyr	zjr
	nyat	ngat	nyat	

Letter Matching (8/10) _____

Score _____

APPENDIX C

LESSONS FOR TREATMENT GROUP E2
AUDITORY CUES

Teachers Directions
Lessons in Phonemic Segmentation
Group E2 (Auditory Cues)

- 1) Lessons are delivered to total group.
- 2) Lessons should take 10-15 minutes per day four days per week.
- 3) Letters should not be used or referred to. If students inquire about letter, explain these lessons are about sounds in words rather than letters.
- 4) Do not write example words on the chalkboard, chart tablets, etc. Do not have students write or copy words before, during or after the lessons in phonemic segmentation.
- 5) Slow, stretched pronunciation means that you extend each sound in a word so that it becomes distinct and discrete: "mom" is pronounced mmmm - oooo - mmmm. Vowel sounds are not changed just because they are being extended. A short /o/ in normal pronunciation is a short /o/ when segmented and stretched.
- 6) Consonants such as b and p are pronounced as buh buh buh (voiced) or puh puh puh (voiceless) when extended.
- 7) Make sure all students are participating in the lessons. It's important for them to hear and say the sounds.
- 8) Give opportunities for students to select words to segment. Add word of your own choosing if you find students need more practice.
- 9) Directions for you within the lesson are in bold print. Read the lessons as scripted.

Group E2
Auditory Cues

Lesson #1

Introduce the lesson

- We are going to begin learning about sound parts in words.
- Words are made up of sounds.
- It's important to learn to hear the sound parts in words.
- It will help us learn to read.
- It will help us figure out new words.
- We need to listen carefully to hear the sound parts in words.

Building the concept of Phonemic Segmentation

- Words are made up of sounds (You say example, they say after you).

- Some words have many sounds like these words.
ex. telephone refrigerator television.
- Some words have few sounds such as these words.
ex. ape see cat it dog
- Some words have just one sound
ex. a
- We put sounds together to make words
- Listen to these sounds and see if you can figure out the word I'm saying:
ex. a - pe (use low stretched pronunciation).
What word did I say? That's right - the word is ape.
ex. m - a - n (slow stretched pronunciation).
What word did I say? That's right - man.
ex. s - ea - t (slow stretched pronunciation).
What word did I say? That's right - the word is seat.

- Now I'll say those same words again and you say them after me. When you say them, be sure you say them slowly and stretch them out like this: m - a - n (use the same words as above).

Today let's listen for the /m/ at the beginning of these words. I'll say them then you say them after me.

ex. mmm - eat mmm - a mmm - an mmm - ap
mm - e

- Can you think of some words with the /m/ sound?

Lesson review

Remember words are made up of sounds.
We can learn to hear sounds in words.
We can put sounds together to make words.
We listened for a sound today - the /m/ sound.

Group E2
Auditory Cues

Lesson #2

Review

Yesterday we talked about words being made up of sounds.
Listen to the sounds in these words:
(Say slowly and stretch them).
ex. sea lamb home may Susie
We can put sounds together to make words. Listen to these.
ex. s - ea/sea l - amb/lamb h - o - me/home m - ay/may S - u - s - ie/Susie
It's important to be able to hear the sounds in words.
It will help us learn to listen.
It will help us learn to read.
It will help us figure out new words when we read.

Lesson objective /l/ sound

Yesterday we listened for the /m/ sound at the beginning of words. Let's listen and say some words that begin with the /m/ sound (Stretch initial /m/ sound. You say, they say).

ex. m - a m - ouse m - ad m - ake M - ike m - e
(You can add others for more practice).
Today let's listen for the /l/ sound at the beginning of some words. Remember we don't have to know the letter. Let's just listen for the /l/ sound.
(Stretch initial /l/ sound. You say, they say).
ex. l - adder l - ip l - ady l - isten l - ap
(You can add others for more practice).
Can you think of a word with the /l/ sound at the very beginning?
(Elicit responses, help as necessary).

Review

You did a good job today. It's important to listen hard for the sounds in words. Remember when we put sounds together, we can make words.

Group E2
Auditory Cues

Lesson #3

Beginning review

We've been talking about sounds and words.

We know words are made of sounds.

If we listen very carefully, we can hear each sound in a word.

Let's remember the sounds we've listened for in some words.

We've talked about the /m/ sound and the /l/ sound.

Listen first and then say these words: (Stretch the initial sound. You say, they say).

ex. m - a/ma m - om/mom m - ouse/mouse m - an/man
l - ike/like l - adder/ladder l - ip/lip
l - isten/listen

Lesson Objective /r/ sound

Today let's listen and say some words that start with the /r/ sound. Then let's say them together. (Stretch the initial sound. You say, they say.)

ex. r - an/ran r - ain/rain r - oar/roar
r - ip/rip r - ead/read r - ight/right r - at/rat

Let's try some more words this time with just the boys. Girls, you listen and see if you can hear the /r/ sound at the start of each word. Then it will be your turn.

ex. r - ug/rug r - ope/rope r - ise/rise
r - ow/row

(Boys then girls).

Who can think of some words that begin with /r/ for us to try?

(Elicit suggestions).

We've been listening for the /r/ sound at the beginning of words today. Let's see if we can think of some words that begin with the /m/ sound. The /l/ sound.

Group E2
Auditory Cues

Lesson #4

Beginning review

- We have talked about listening for sound parts in words.
- Remember to be good listeners so you can hear the sounds.
- We want to listen for and hear the first sound in words this week.

Lesson objective

-Let's see if we can listen for the very first sound in some words today. I'll say a word, you repeat it. The I'll stretch out the very first sound so you can really hear it like this: mess/mmm - ess

-Let's listen first for the /m/ sound. (You say, they say.)

ex. man mat map mickey might
mouse mom muffin mattress me

-Now let's try some words that begin with the /l/ sound. Listen for the /l/ sound at the very beginning of these words. I'll say them then you say them.

ex. like lap love lip lollipop
low lamp let left lamb

-Now let's listen to some words that begin with the /r/ sound like rat. Listen rrr - at. Did you hear the /r/ sound? I'll say the word then you say it.

ex. run rabbit right ran row
rust race rapid rope rodeo

-Now let's try one more sound at the beginning of some words, the /s/ sound. Listen and see if you hear the /s/ sound in this word: ssss - ea. Did you hear it? Good - now let's practice.

ex. soap say sandwich so sit
sink soft seat saw sofa

Ending review

- This week we have started to listen for sounds in words.
- We really tried to hear the very first sound in some words.
- This is hard, but we'll keep practicing.

Group E2
Auditory Cues

Lesson #5

Beginning review

- Last week we started listening for sounds in words.
- We really tried to hear the very first sound in some words.
- Some sounds we listened for were /m/ like in mmmm - om.
- We listened for /l/ as in llll - ip and /r/ as in rrrr - ap

Lesson objective

-Today we're going to try something new. We'll try to hear all the sounds in some words, not just the first sound.

- I'll help you learn to do this. For each sound we hear in a word, I'll clap. Watch and listen.
- (Demonstrate with word "mom". Clap 3 times as you say and extend the sounds).

-You see, I clapped for each sound we heard in "mom". Now let's try some together.

ex. man/m - a - n. This word has a clap for the /m/ sound, one for the /a/ sound and one for the /n/ sound. Man. (Continue with examples. Have children say word and extend it with you as you clap for each sound).

ex.	map	lip	run	see	saw
	man	like	rip	so	sat
	low	ran	race	mom	dad

Ending review

- Good job! It's hard to hear each sound in a word.
- We'll keep practicing.

Group E2
Auditory Cues

Lesson #6

Beginning Review

-We've been listening to sounds at the very beginning of words like this. (You say, they repeat after you. Stretch initial sound).

ex. m - an l - ike r - ace S - am
 m -ouse l - ess r - oad s - oup
 m - e l - et r - im s - it

-Today we're going to listen for all the sounds in some words. Remember:

-We know words are made of sounds.

-If we listen carefully, we'll be able to hear each separate sound in a word like this: (You demonstrate with examples. Use slow stretched pronunciation so each sound is made separate and discrete).

ex. Mom - it has three sounds: m - o - m
 Sew - it has two sounds: s - ew
 At - it has two sounds: a - t

-We know when we put sounds together, we can make words like this: (Say each example in a slow stretched way and then normally).

M - o - m/mom s - ew/sew a - t/at

Lesson Objective

-Today let's practice listening for each sound in some words. I'll say each sound in a word separately and slowly. You see if you can figure out how many sounds you hear in the word. Ready? (Give corrective feedback and demonstrate again if necessary).

ex. l - e - ss Did you hear 3 sounds?
 m - e How many sounds did you hear?

(Repeat for each example).

m - a - n r - oa - d S - a - m s - ou - p
 m - ea - n r - a - ce m - o - ss s - ea - t

Ending review

-Today we started to work on hearing all the separate sounds in a word.

-It's hard.

-We must listen carefully to hear each separate sound.

-We'll keep practicing!

Group E2
Auditory Cues

Lesson #7

Beginning review

-Today we are going to continue listening for sounds in words. Let's call them sound parts in a word.

-We have to be extra good listeners to hear all the sound parts in a word.

-It's important to be able to do this. It can help us when we begin to learn to read.

Lesson objective

-Let's listen to these words. See if you can hear all the sounds in each word. I'll say each word the regular way then I'll say it all stretched out like this: Mom/m - o - m. Ready?

ex. man/m - a - n row/r - o - w saw/s - aw
log/l - o - g me/m - e mop/m - o - p

-Now you think of a word. Try to think of a short word! When I call on you, say your word. Then together we'll stretch it out and listen for it's sound parts. (Elicit 4-5 suggestions from children one at a time. Say word in a normal way then say it slow and stretched. Have children repeat after you).

This time I'll choose a word and say it the regular way. Then let's stretch it out together like this:
moon/m - oo - n.

ex. road/r - oa - d fat/f - a - t hop/h - o - p
see/s - ee suit/s - ui - t

Ending review

You've done a good job today. This is hard! But we'll learn to listen carefully to each sound part in a word.

Group E2
Auditory Cues

Lesson #8

Beginning review

-Today we will continue to work on listening for sound parts in words.

-Remember we are not looking for letters. We don't have to think about letters at all! We're listening carefully for the sounds in words.

-It's important to pay attention and listen carefully.

Lesson objective

-Listen to these words. I'll say each one slowly and stretch it out. Then you tell me what word I said. I'll do one for you to show you how. L - a - mb/lamb. See how I did it? Now you try.

ex. r - a - n m - i - ss b - ee s - i - p
l - a - p r - oo - t s - a - w

-Now let's try something new. I'll say a word then we'll stretch it out together. Then we'll say it again stretched out but this time we'll clap for each sound part in the word. Watch. I'll show you how. moose/m - oo - se / m (clap) - oo (clap) - se (clap). See? I clapped for each sound part in the word. Now let's do some together.

ex. run/r - u - n/ r (clap) - u (clap) - n (clap)
seat/s - ea - t/ s (clap) - ea (clap) t (clap)
mom/m - o - m/ (Repeat - 3 claps)
rip/r - i - p/ (Repeat - 3 claps)
me/m - e/ (Repeat - 2 claps)

Ending review

-Today we practiced listening for and hearing sound parts in words.

-We also took words that were stretched out and put them back to how they really sound. And we found that we can clap for each sound in a word. That can help us separate each sound in a word.

Group E2
Auditory Cues

Lesson #9

Beginning review

-Today we'll do some more work with sounds in words.
-Who can tell me why it's important to be able to hear each sound part in a word? (Elicit responses: help us learn to read, make us good listeners, etc.).

Lesson Objective

-Let's say some words together then as we stretch them out, let's clap for each sound we hear. Watch - I'll show you how.

-I'll say a word like "ham". You repeat it. Then we'll say it together slowly and stretched so we hear each sound. Like this: h - a - m. I clap for each sound: h - (clap) - a (clap) - m (clap). Three sounds, three claps.

-Now let's do it together. (Use these words. Follow procedure above).

ex. man	be	sit	dad	hole
saw	mom	fat	zip	tall
meat	none	dig	loss	might
lip	mat	hot	go	we
art	hug	keep	pull	muff

Ending review

-Good job! Now we have learned to clap for each sound.

-That can help us hear where one sound ends and the next sound begins.

Group E2
Auditory Cues

Lesson #10

Beginning review

- Today we're going to practice listening for sound parts in some words.
- Remember words are made of sounds.
- We can put sounds together to make words.
- It's important to be a good listener.

Lesson Objective

-I'll say a word then you say it after me. Then we'll stretch the word out slowly. Let's see if we can hear each sound in these words. (Say each word in a normal way, then slow and stretched).

ex. can/ c - a - n hear/ h - ea - r we/ w - e
sat/ s - a - t dad/ d - a - d so/s - o
hat/ h - a - t

-Now let's try those same words again. This time let's clap for each sound in a word when we'll stretch it out, just the way we did yesterday. I'll show you how: (Demonstrate)

mom / m - o - m / m (clap) - o (clap) - m (clap)

-Now who wants to think of a word for us to practice on? We'll try to hear all its sound parts. Raise your hand when you have a word. We'll say it together and then say it together stretched out. (Elicit words from children.)

Review

You are learning to listen for each sound in a word. You're doing a good job!

Group E2
Auditory Cues

Lesson #11

Beginning review

-Be sure you listen carefully today. We'll be working on hearing sound parts in words again.

-Remember this is important. It can help you when you begin to learn to read. And it can help you figure out new words.

Lesson Objective

-I'll say a word then let's see who can repeat it and then say it again very slowly and stretched out. Then we'll all say it stretched out together. Let's try it. We'll help if you get stuck! (Call on individual students to stretch word. Help as needed. Have class repeat it slow and stretched after child).

	You say	Child says	Class says
ex	mom	m - o - m	m - o - m
	peep	p - ee - p	p - ee - p
	sat	s - a - t	s - a - t
	ran	(Continue same procedure)	
	hop		
	ride		
	lap		
	bee		

-This time let's stand up and stamp our feet for each sound we hear in a word. We've done this with claps. Now let's try it with our feet like this: mom / m - o - m / m - (stamp) - o (stamp) - m (stamp).

-I'll say the word then you say it. I'll stretch it out then you stretch it. Then we'll stretch it again but this time we'll stamp our feet for each sound we hear in the word. Ready? (Use same words as above).

Review

-Good job! Now we can stamp our feet and clap our hands as we listen for sound parts in words. Good for you.

Group E2
Auditory Cues

Lesson #12

Beginning review

-We've been learning to listen carefully for the separate sounds in words.

-We know we can put sounds together to make words.

-Now let's be extra good listeners today and see if we can hear each sound in some words.

Lesson Objective

-Today let's start off by practicing saying some words we know very slowly and stretch them out. I'll say a word in a regular way then I'll say it slowly and stretched out. You repeat it after me. Ready? (Use the examples below, add more if more practice is needed).

ex cat/ c - a - t mop/ m - o - p late/ l - a - te
saw/ s - a - w kit/ k - i - t some/ s - o - me
fish/ f - i - sh dad/ d - a - d fool/f - oo - l
moose/ m - oo - se more/ m - o - re
him/ h - i - m home/ h - o - me me/ m - e

-Now let's use these same words and clap our hands for each sound when we say them slowly and stretched out. Watch - I'll show you. sis/ s - (clap) - i (clap) - s. (Use same words as above. Demonstrate again if necessary).

-This time let's practice using those same words one more time. But let's stand up and stamp our feet for each sound. Remember we'll stamp for each sound when we say a word slowly and stretched out. Watch - I'll show you. (Use same words as above. Demonstrate again as necessary).

sis/ s (stamp) - i (stamp) - s (stamp).

Ending review

-Good job! It's fun to clap and stamp, isn't it? And clapping and stamping can help us hear where one sound ends and another sound begins.

Group E2
Auditory Cues

Lesson #13

Beginning review

- We've been talking about sound parts in words.
- We know words are made of sound. When we put sounds together, we can make words.
- When we are working on listening for sounds in words, we don't have to think about letters. We work on learning our letters at other times during the day. Right now we have to listen very carefully.

Lesson Objective

- Listen to these words. I'll say them in a normal way and then stretch them out so you can hear each sound. You repeat them after me. (Do three examples to demonstrate).

ex man/ m - a - n	sat/ s - a - t	bee/ b - ee
so/ s - o	fan/ f - a - n	four/ f - ou - r
zoo/ z - oo	can/ c - a - n	suit/ s - ui - t
dog/ d - o - g	foam/ f - oa - m	it/ i - t

- Now let's say them again and boys, you clap each sound. Remember to clap when we say each sound slowly and stretched out. Then girls, you'll do the clapping. Let's try it. (Use same words above twice more).

Ending review

- Remember to really listen carefully.
- We can learn to listen for sounds in words. We'll keep practicing.

Group E2
Auditory Cues

Lesson #14

Beginning review

-We've not only learned to hear the sound parts in words. We know why it's important to be able to do this. Who can tell me why it's important? (Elicit various responses).

-Good. I'm glad you understand why this is important work we're doing. Let's get to work.

Lesson Objective

-Listen to these words. I'll say them then you say them. Then we'll stretch each word out to hear each sound part. Ready? Here we go. (Use these examples, add your own if more practice is necessary).

ex. made/	m - a - de	in/	i - n	dad/	d - a - d
seat/	s - ea - t	at/	a - t	fish/	f - i - sh
too/	t - oo	each/	ea - ch	far/	f - a - r
see/	s - ee	meat/	m - ea - t	toe/	t - oe

-Now you think of a word and we'll try to hear its sound parts. Try to pick a short word for us. Some long words have too many sounds for us. (Elicit suggestions from students. Say in normal way then slow and stretched with class).

Ending review

-Hearing sound parts in words can help us learn to read.

-We'll be able to figure out words we don't know.

-If we listen very carefully and then say each sound in a word, we can do it!

Group E2
Auditory Cues

Lesson #15

Beginning review

- Tell me why it is important to listen for sound parts in words.
- When we put sounds together, what do we have? Let's work hard today. See if you can hear and say each sound in these words.

Lesson Objective

- Who can say the word I give you and then stretch it out for us very slowly? Does someone want to try? (Solicit volunteers).

-I'll say a word. You repeat it and then stretch it out.

ex. mom/m - o - m	lot/l - o - t	Tim/T - i - m
me/m - e	lab/l - a - b	us/u - s
cat/c - a - t	talk/t - a - lk	Sue/S - ue
Pete/P - e - te	mat/m - a - t	tee/t - ee

-Now let's use those same words and clap for each sound part we hear. First we'll say them in a normal way. Then we'll really stretch them out and clap for each sound, too. I'll say the word first. You repeat it after me. Then we'll stretch it together.

Ending review

-We're getting better and better at hearing and saying sound parts in words.

-I liked the way some of you tried to do it on your own. That was good!

Group E2
Auditory Cues

Lesson #16

Beginning Review

- Let's go on with our work today. We'll practice hearing and saying sound parts in words.
- Remember you must be a super listener!

Lesson Objective

- Let's say these words together one at a time.
- First we'll say them in a regular way. Then we'll say them slowly and stretch them out. Listen so you will hear each sound part and be sure you say each one, too. (Say the word, have class repeat then stretch it slowly together. Follow example of first 2 words).

ex.	come/c - o - me	me/m - e
	done	take
	cat	do
	deep	bee
	so	mess
	coon	it
	set	late
		read
		some
		nap
		cup
		at
		mop

- Now let's say those same words again and stamp our feet when we stretch them out. Do it like this: (Demonstrate with first 2 examples. Use same words as above).

come/ c (stamp) - o (stamp) - me (stamp)
me/ m (stamp) - e (stamp)

Ending review

- Every time we practice with hearing sound parts in words, you get better and better!
- Remember you must listen, say each sound, and sometimes we'll clap our hands or stamp our feet too!

Group E2
Auditory Cues

Lesson #17

Beginning review

- Get ready to work hard! And get ready to listen carefully.
- Remember you have to really open those ears and listen to hear each little sound in a word.
- This is important for you to learn. It will help you later when you begin to learn to read.

Lesson objective

- Some words have just one sound like the word "a" in "a story."

- Some words have two sounds. Can you think of a word with just two sounds? (Elicit responses. If none, give example "so").

- Who can think of some other words with just two sounds? (Elicit words like it, at, to, as).

- Some words have three sounds. Listen to these:
ex. cat/c - a - t (Hold up one finger for each sound).

toot/t - oo - t (Use fingers).

tin/t - i - n (Use fingers).

- Some words have lots of sounds. These sounds can be hard to hear. Listen to some examples:

ex. puppy/p - u - pp - y super/s - u - p - er
 floor/f - l - oo - r pant/p - a - n - t

- Now let's work on some words together. I'll give you a word. You repeat it after me. Then let's say it slowly and stretched out together.

ex.	fit	bowl	mitt	pup	meat
	it	dip	pan	cat	home
	lap	loan	shop	eat	him
	for	see	hum	some	if

Ending Review

- Today we went over the idea that some words have lots of sounds. Some words have just a few sounds.

- We know when we put sounds together, we can make words.

Group E2
Auditory Cues

Lesson #18

Beginning Review

- Do you remember yesterday how we talked about the number of sounds in words?
- We know some words have lots of sounds like the word "puppy." I'll say it for you so you can hear all its sounds: p - u - pp - y (Hold up one finger for each sound, four fingers up at end of word).
- Here's another word with lots of sounds. Listen while I say it. I'll put up one finger for each sound I say.
sandwich/s - a - n - d - w - i - ch
- Seven sounds - can you believe it?

Lesson Objective

- Today let's try putting one finger up for each sound we hear in a word. We'll do it together just like I showed you. Ready?
- ex. dog/d - o - g Dog has three sounds so we should have 3 fingers up.
- at/a - t At has 2 sounds so we should have 2 fingers up.

(Same procedure for the rest of examples).

ex.	cat	fish	man	it	soap
	hose	mom	cap	or	soup
	rug	fan	call	set	hit
	rush	tan	Sam	mow	wall

- Good! Now let's say them again and stand up and stamp our feet for each sound we hear. We'll stamp when we are saying the word slowly and stretched out so we can hear each sound part. (Use same words as above).

Ending Review

- Did you see how we can show how many sounds a word has? We can show the sound parts by holding up our fingers or stamping our feet.
- Some words have lots of sounds. Some have just a few.

Group E2
Auditory Cues

Lesson #19

Beginning review

- Yesterday we held up one finger for each sound we heard in a word. Remember how we did that?
- We know some words have just a few sounds. Some words have lots of sounds! All words are made of sounds.

Lesson objective

- Today, let's try something new. Let's see if we can listen for the very last sound in some words. This is called the ending sound. It is the very last sound you hear in a word.

- Listen and I'll show you what I mean.
ex. dog/ d - o - g The last sound I hear is the /g/ sound.
cat/ c - a - t The last sound I hear is the /t/.

- it i - t The last sound in it is /t/.
- Now let's try some together. I'll say a word. You repeat it. Then we'll say it very slowly and listen for the very last sound. Ready?

- ex. cat/, c/ - a - t. The last sound was the /t/.
am/, a - m. The last sound was /m/.
fish (Continue as with first 2 examples).

ham	run	so	man	dad
top	beet	fun	deep	sum
cup	took	read	do	me
sat	beam	key	sit	nap

Ending review

- See how we can hear just the last sound in a word?
- When we first started to practice sound parts in words, we listened for the first sound.
- Now we are so good, we can hear the last sound in a word.

Group E2
Auditory Cues

Lesson #20

Beginning review

- Yesterday we worked on hearing the very last sound in some words.
- The ending sound is the last sound we hear. In the word "cat," the last sound we hear is /t/. In the word "home," the last sound we hear is /m/.

Lesson objective

- Today let's practice listening for sounds in words and clapping them.
- I'll say a word. Then we'll say it together in a regular way. Then we'll say it together all stretched out so we can hear every sound part. Finally we'll say it together slowly and clap for each sound we hear. Ready? Here we go.

ex.	man	top	run	sit
	at	rope	on	Pete
	same	it	cat	fun
	off	beet	jam	fat
	goof	sum	dog	nut

- This time let's use the same words only we'll do it a little differently. After I say the word, raise your hand if you'd like to try stretching and clapping it all by yourself. If you get stuck, I'll help. Any volunteers for the first one? (Solicit volunteers.) Good here we go!

(Use word list above. Say the word. Let child segment it.)

Ending review

- Good job! You are really getting good at taking words apart and listening for their sounds.

Group E2
Auditory Cues

Lesson #21

Beginning review

- We've been listening to words and breaking them into their sound parts.
- We've listened for the first sound in words.
- We've listened for the ending sound in words.
- We've even found we can count how many sounds we hear in a word! We're doing great!

Lesson objective

- Today we're going to try something a little new. First we'll practice with some words saying them in a regular way and then slowly and stretched so we can hear each sound. Let's do that now.

- I'll say a word, you repeat it. Then together we'll say it slowly and stretched out so we can hear each sound part. Here we go.

ex.	made	dish	bed	neat	soup
	due	run	it	hear	cane
	four	six	jam	putt	zoo
	seat	mom	sis	sad	bro

- Now this time let's try something new. I'll say the words stretched out first. You see if you can figure out what the word is. Here, I'll show you what I mean.

- If I say a word like this: m - o - m, you would say "mom."

- If I say a word like this: s - ee, you would say "see." (Give more examples as necessary.) Now let's try it. Raise your hand if you can figure out what my stretched out word is. (Use list above.)

Ending review

- You see? We can take words apart and hear each little sound part. And now we can put sound parts back to make words.

Group E2
Auditory Cues

Lesson #22

Beginning review

- Let's work again on hearing all the sounds in some words.
- Remember this is an important skill for us to learn. It can help us when we begin to learn to read.

Lesson objective

- We're going to do something today that we've done before.
- We're going to listen and say the very first sound we hear in a word. For example, if I say the word "man," you will say m - an. If I say the word "bean," you will say b - ean. If I say the word "sit," you will say s - it. Ok? Here we go. Let's do the first ones together. (Do the first 4 or 5 as a group then call on individuals.)

ex.	moon	beat	sat	road	go
	sum	fish	rug	vet	sew
	ham	yap	lamb	sass	top
	hat	zip	done	get	jam
	sock	shirt	coat	pea	far

- Now I'm going to make it really tricky! Do you think you can use the same words and tell me their ending sound? Remember the ending sound is the last sound you hear in a word. Let's try it.

- If I say the word "man," you will say ma - n. If I say the word "bean" you will say bea - n. Let's do the first ones together. Then you can volunteer to try some on your own. (Do first 4-5 as a group then call on individuals. Use same words as above.)

Ending review

- Today we listened for the beginning and the ending sounds in some words.
- We'll practice some more tomorrow.

Group E2
Auditory Cues

Lesson #23

Beginning review

- We'll continue with listening and saying sound parts in words.
- Remember sound parts are important. When we put sounds together, we can make words.

Lesson objective

- I'll say a word then you say it. Then we'll say it together slowly and stretched. That way we will hear each of its sound parts.

ex.	book	run	pen	pan	draw
	right	walk	read	sit	room
	wrote	door	line	mop	Sam
	peep	ran	lap	bee	hop
	toot	can	tin	pup	fog

- Now let's give you a turn to think of a word. Raise your hand when you think of a word, tell us the word when I call on you. Then we'll try to say it real slow and stretched out. We'll try to hear all its sound parts. Who has a word for us to try? (Solicit volunteers.)

Ending review

- We worked hard today. You thought of some good words for us to practice on.

Group E2
Auditory Cues

Lesson #24

Beginning review

- We know sounds make words. We can put sounds together to make words.
- We can take words and stretch them apart so we can hear each sound in them.
- Today we'll practice doing that.

Lesson objective

- Listen and say these words after me.
- We'll say them their regular way then we'll say them slowly and stretched. (Use usual you say, they say procedure.)

ex.	dog	bird	cat	eagle	ape
	cot	rat	chick	horse	moose
	hen	pig	home	tree	limb

- Now let's try something a little harder. We've been working with words that have one, two or three sounds.

- Let's try stretching some words with more than 3 sounds. Let's try the word "puppy." I'll say it for you very slowly. Put up a finger each time you hear a different sound. Ready?

ex. puppy/ p - u - pp - y

- How many sounds did you hear? (Elicit responses.)
Let's say it together very slowly and hold up one finger
for each sound we hear.

ex. puppy/ p - u - pp - y. Did everyone count four fingers up? That means there are four sounds in the word "puppy."

- Let's try some more words. I'll say a word and you repeat it. Then we'll stretch it together. And we'll hold up one finger for each sound we hear.

ex.	grass (4 sounds)	sister (5 sounds)
	daddy	mommy
	doggy	kitty
	chicken	happy

Ending review

- This is harder, isn't it? You are doing a good job and listening hard.
- Soon it won't be hard for you at all.

Group E2
Auditory Cues

Lesson #25

Beginning review

- Yesterday we practiced on words that had more than 3 sounds.
- Let's work on that again today.

Lesson objective

- I'll say a word, you repeat it after me. Then we'll say it together stretched out.
- This may be a little harder. Some of the words may have more sounds to listen for. (You say, they say procedure.)

ex.	rug	door	soap	grass
	desk	sit	jar	broom
	bow	tree	deck	trick
	paper	pen	pick	push
	mommy	daddy	sister	bro

- Now I'll say those same words to you one at a time. But I'll say them their stretched out way.

- Raise your hand if you can tell me what word I'm stretching out. (Use same words again. Say them slowly and stretch each sound part. Take volunteers to respond.)

Ending review

- You are doing a great job!
- You have learned to take words and stretch them so you can hear each sound.
- Now you are learning to take sounds and put them back in to words.

Group E2
Auditory Cues

Lesson #26

Beginning Review

- Today we'll listen again for sounds in words. Remember this can help us when we begin to learn to read.
- Listen carefully so you can hear each sound in some words.
- Remember we're not worried about letters here - we're listening for sounds.

Lesson objective

- Let's listen today for the ending sound in some words. The ending sound is the last sound we hear in a word.
- Listen to some examples then we'll do some together.
mom/mo - mmm be/b - eee saw/s - aw sit/ si - tt
- Now let's do these words together. First I'll say them normally then I'll stretch out the ending sound. Then you repeat after me. (Use above words again and then the following)

sun/su - nnn race/ra - sss Tom/To - mmm car/ca - rrr
ram/ra - mmm puff/pu - fff man/ma - nnn chair/chai - rrr
see/s - eee moon/moo - nnn sky/sk - yyy some/so - mm

Ending review

- Good job! Tomorrow will do some more listening and practicing.

Group E2
Auditory Cues

Lesson #27

Beginning review

- Let's talk about why it is important to listen for sound in words. Who can give me one reason? (Elicit responses.) Can you think of other reasons? (Answers might include learning to read, learning to listen carefully, etc.)

- Listen carefully so you can hear each sound we say.

Lesson objective

- Let's say some words together then say them slowly and stretched out so that we can hear each sound. (Use these words)

all	met	sam	zap	be	beet	do	name	see
jam	vote	men	soft	kid	hope	no	dug	so
mitt	dog	cat	hen	seek	fat	seat	seam	four

- Can you think of some words for us to practice with? Raise your hand if you have a word. We'll try to say it slowly and see what sounds it has.

Ending review

- You're doing a good job!
- Remember to listen carefully.

Group E2
Auditory Cues

Lesson #28

Beginning review

- Remember to listen today for the sound parts in words.
- You must be good listeners to do this.
- Today we want to listen for the very first sound in some words.

Lesson objective

- Let's try to hear the beginning sound in some words. Remember this is the very first sound we hear in a word.
- In the word "girl," the first sound we hear is /g/. In the word "boy," the first sound we hear is /b/. Let's say it again but this time we'll stretch out the first sound in the word. Ready?

ex.	man	like	run	saw	Tom
	mickey	mouse	lap	mom	race
	mighty	bread	rap	lollipop	right
	zip	fan	sofa	cook	got
	super	low	sat	desk	bed

Ending review

- Today we listen for sounds at the beginning of words.
- We are doing great!

Group E2
Auditory Cues

Lesson #29

Beginning review

- Let's practice listening to words and clapping their sounds today.
- You're getting good at this!
- Remember some words may have just 2 or 3 sounds, but others might have more.

Lesson objective

- I'll say a word and then you say it. When you say it, clap for each sound you hear.
- Listen - I'll do the first one and show you.
ex. mom/ m - (clap) - o (clap) - m (clap)
- We've done this before. Let's try it.

ex.	dad	beat	lamb	sofa	mat
	race	man	see	a	sit
	lap	right	low	pet	sand
	row	wall	seal	it	on
	only	ran	farm	sew	page

- Now let's try it again but this time stand up.
We'll stamp our feet for each sound we hear.

Ending review

- Good job!
- You have learned to listen well.

Group E2
Auditory Cues

Lesson #30

Beginning review

- We will work on listening for sound parts in words for just a few more days. You have learned a lot and have done very well!

- Who can tell me why it's important to be able to hear sounds in words? (Elicit responses.)

- Why are we working on this? What can it do for us?

Lesson objective

- Here are some words. Let's say them together then stretch them out. We want to be able to hear each sound part.

ex.	feet	soap	book	in	pan
	lamp	tummy	pen	head	seat
	miss	free	man	blue	red
	black	green	clay	brush	sand
	sandwich	before	purple	ham	home

- Now let's say them again. This time let's clap for each sound in a word. We've done this before - you know how to do it.

Ending review

- Remember it doesn't matter how big or long a word is.

- We can stretch out any word and listen for all its sound parts.

Group E2
Auditory Cues

Lesson #31

Beginning review

- We're just about finished working on listening to sound parts in words.
- Today we'll work on some more words. We're really getting good at this!
- It will really help us when we begin to learn to read.

Lesson objective

- Today I'll say a word. You say it then we'll stretch it out so we can hear each sound. Ready?

ex.	pop	soak	map	foot	paper
	bee	ape	can	dug	pepper
	go	hand	piece	Sam	arm
	leg	pick	fame	fish	glass
	dish	cup	spoon	fork	bowl

- Now can you think of some words for us? If you have a word, raise your hand. Tell us the word and we'll repeat it. Then together we'll try to say it very slowly so we can hear all it's sound parts. (Solicit suggestions.)

Ending review

- Good job! It's hard to trick you now.

Group E2
Auditory Cues

Lesson #32

Beginning review

- Today is our last lesson in listening for sound parts in words.
- We have learned a lot! We can take almost any word and stretch it out so we can hear each of its sounds.
- Let's practice one more time. Then we'll be finished.

Lesson objective

- Let's say some words together and then clap for each sound we hear when we say them very slowly.
- I'll do one first. leg / l - (clap) e - (clap) g - (clap).
- Now let's do some together.

ex.	arm	a	sit	spit	mow
	to	like	hand	best	feet
	it	bow	ruler	top	green
	pest	farm	for	fort	forts
	poke	pokes	mommy	daddy	teacher

- Now who would like us to try one of their words?
Raise your hand if you have one.

Ending review

- You have worked hard and learned a lot!
- This will help you as you learn to read.

APPENDIX D

LESSONS FOR TREATMENT GROUP E3
AUDITORY AND VISUAL CUES

Teacher Directions

Lessons in Phonemic Segmentation

Group E3 (Auditory and Visual Cues)

- 1) Lessons are delivered to total group.
- 2) Lessons should take 10 - 15 minutes per day four days per week.
- 3) Letters should not be used or referred to in the lessons. If students inquire about letter, explain these lessons are about sounds in words rather than letters.
 - r) Do not write example words on chalkboard, chart tablets, etc. Do not have students write or copy any words before, during or after the lessons in phonemic segmentation.
- 5) Slow stretched pronunciation means that you extend each sound in a word so that it becomes distinct and discrete: "mom" is pronounced as mmm - ooo - mmm. Vowel sounds are not changed just because they are being extended. A short /o/ in normal pronunciation is a short /o/ when segmented and stretched.
- 6) Consonants such as b and p are pronounced as buh (voiced) or puuh (voiceless) when extended.
- 7) Introduce markers for sound parts after the first week of instruction. Place 1 marker on the chart for each sound in a word as you extend it. The word "at" would have 2 markers. The word "dad" would have 3 markers. Place the marker as you and/or the children say the sound.
- 8) Directions for you within the lesson are in bold. Read the lessons as scripted.
- 9) Make sure all students are participating in the lessons. It's important for them to hear and say the sounds.
- 10) Give opportunities for students to select words to segment. Add words of your own choosing if you find students need more practice.

Group E3
Auditory and Visual Cues

Lesson #1

Introduce the lesson

- We are going to begin learning about sound parts in words.
- Words are made up of sounds
- It's important to learn to hear the sound parts in words.
 - It will help us learn to read.
 - It will help us figure out new words.
- We need to listen carefully to hear the sound parts in words. Building the concept of phonemic segmentation.
- Words are made up of sounds. (You say example, they say after you.)
 - Some words have many sounds like these words.
ex. telephone refrigerator television
 - Some words have few sounds such as these words.
ex. ape see cat it dog
 - Some words have just one sound.
ex. a
 - We put sounds together to make words.
Listen to these sounds and see if you can figure out the word I'm saying:
ex. a - pe (use slow stretched pronunciation).
- What word did I say? That's right - the word is ape.
ex. m - a - n (slow stretched pronunciation).
- What word did I say? That's right - man.
ex. s - ea - t (slow stretched pronunciation).
- What word did I say? That's right - the word is seat.
- Now I'll say those same words again and you say them after me. When you say them, be sure you say them slowly and stretch them out like this: m - a - n. (use same words as above).
- Today let's listen for the /m/ sound. (No letter name, just /m/ sound).
 - Listen for /m/ at the beginning of these words.
I'll say them then you say them after me.
ex. mmm - eat mmm - ay mmm - an mmm - ap mmm - e
 - Can you think of some words with the /m/ sound?

Lesson review

- Remember words are made up of sounds.
- We can learn to hear sounds in words.
- We can put sounds together to make words.
- We listened for a sound today - the /m/ sound.

Group E3
Auditory and Visual Cues

Lesson #2

Review

Yesterday we talked about words being made up of sounds. Listen to the sounds in these words:
(Say slowly and stretch them.)
ex. sea lamb home may Susie
We can put sounds together to make words. Listen to these:
ex. s - ea/sea l - amb/lamb h - o - me/home m - ay/may S - u - s - ie/Susie
It's important to be able to hear the sound in words.
It will help us learn to listen.
It will help us learn to read.
It will help us figure out new words when we read.

Lesson objective /l/ sound

Yesterday we listened for the /m/ sound at the beginning of words. Let's listen and say some words that begin with the /m/ sound. (Stretch initial /m/ sound. You say, they say.)
ex. m - ay m - ouse m - ad m - ake M - ike
m - e
(you can add others for more practice.)

Today let's listen for the /l/ sound at the beginning of some words. Remember we don't have to know the letter. Let's just listen for the /l/ sound. (Stretch initial /l/ sound. You say, they say.)
ex. l - adder l - ip l - ady l - isten l - ap
(You can add others for more practice.)
Can you think of a word with the /l/ sound at the very beginning?
(Elicit responses, help as necessary.)

Review

You did a good job today. It's important to listen hard for sounds in words. Remember when we put sounds together, we can make words.

Group E3
Auditory and Visual Cues

Lesson #3

Beginning review

- We've been talking about sounds and words.
- We know words are made of sounds.
- If we listen very carefully, we can hear each sound in a word.
- Let's remember the sounds we've listened for in some words. We've talked about the /m/ sound and the /l/ sound. Listen first and then say these words: (Stretch the initial sound. You say, they say.)
 - ex. m - a/ma m - om/mom m - ouse/mouse
 - m - an/man l - ike/like l - adder/ladder
 - l - ip/lip l - isten/listen

Lesson objective /r/ sound

- Today let's listen and say some words that start with the /r/ sound. Listen closely and you'll hear the /r/ sound. Then let's say them together. (Stretch the initial sound. You say, they say.)

ex. r - an/ran r - ain/rain r - oar/roar
r - ip/rip r - ead/read r - ight/right
r - at/rat

- Let's try some more words this time with just the boys. Girls, you listen and see if you can hear the /r/ sound at the start of each word. Then it will be your turn.

ex. r - ug/rug r - ope/rope r - ise/rise
r - ow/row

(Boys then girls.)

- Who can think of some words that begin with /r/ for us to try?
(Elicit suggestions.)

Review

We've been listening for the /r/ sound at the beginning of words today. Let's see if we can think of some words that begin with the /m/ sound. The /l/ sound.

Group E3
Auditory and Visual Cues

Lesson #4

Beginning review

- We have talked about listening for sound parts in words.
- Remember to be good listeners so you can hear the sounds.
- We want to listen for and hear the first sound in words this week.

Lesson objective

- Let's see if we can listen for the very first sound in some words today. I'll say a word, you repeat it. Then I'll stretch out the very first sound so you can really hear it like this: mess/mmm - ess.

- Let's listen first for the /m/ sound. (You say, they say.)

ex.	man	mat	map	mickey	might
	mouse	mom	muffin	mattress	me

- Now let's try some words that begin with the /l/ sound. Listen for the /l/ sound at the very beginning of these words. I'll say them then you say them.

ex.	like	lap	love	lip	lollipop
	low	lamp	let	left	lamb

- Now let's listen to some words that begin with the /r/ sound like rat. Listen rrr - at. Did you hear the /r/ sound? I'll say the word then you say it.

ex.	run	rabbit	right	ran	row
	rust	race	rapid	rope	rodeo

- Now let's try one more sound at the beginning of some words, the /s/ sound. Listen and see if you hear the /s/ sound in this word: sss - ea. Did you hear it?

Good - now let's practice.

ex.	soap	say	sandwich	so	sit
	sink	soft	seat	saw	sofa

Ending review

- This week we have started to listen for sounds in words.
- We really tried to hear the very first sound in some words.
- This is hard, but we'll keep practicing.

Group E3
Auditory and Visual Cues

Lesson #5

Beginning review

- Last week we started listening for sounds in words.
- We really tried to hear the very first sound in some words.
- Some sounds we listened for were /m/ like in mmmm - om.
- We listened for /l/ as in llll - ip and /r/ as in rrrr - ap

Lesson objective

- Today we're going to try something new. We'll try to hear all the sounds in some words, not just the first sound.

- I'll help you learn to do this. For each sound we hear in a word, I'll put a little marker on our chart up here. Watch.

(Demonstrate with word "mom." Place 3 markers on chart as you say and extend the sounds.)

- You see, I put a marker on our chart for each sound we heard in mom. Now let's try some together.

ex. man/ m - a - n. This word has a marker for the /m/ sound, one for the /a/ sound and one for the /n/ sound. Man. (Continue with examples. Have children say word and extend it with you as you put up markers for each sound.)

ex.	map	lip	run	see	saw
	man	like	rip	so	sat
	low	ran	race	mom	dad

Ending review

- Good job! It's hard to hear each sound in a word.
- We'll keep practicing with our markers.

Group E3
Auditory and Visual Cues

Lesson #6

Beginning Review

We've been listening to sounds at the very beginning of words like this: (You say, they repeat after you. Stretch initial sound.)

ex.	m - an	l - ike	r - ace	s - am
	m - ouse	l - ess	r - oad	s - oup
	m - e	l - et	r - im	s - it

Today we're going to listen for all the sounds in some words.

Remember:

We know words are made of sounds.

If we listen carefully, we'll be able to hear each separate sound in a word like this. (You demonstrate with examples. Use slow stretched pronunciation so each sound is made separate and discrete.) To help you, I'm going to place a marker on my chart here for each sound in the word. Watch and listen.

ex. Mom - it has three sounds: m - o - m so I put 3 markers on our chart.

Sew - it has two sounds: s - ew so I put 2 markers on our chart.

At - it has two sounds: a - t so I put two markers on our chart.

We know when we put sounds together, we can make words like this: (Say each example in a slow stretched way and then normally.)

M - o - m/ mom	s - ew/ sew	a - t/ at
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Lesson Objective

Today let's practice listening for each sound in some words. I'll say each sound in a word separately and slowly. You see if you can figure out how many sounds you hear in the word. Ready? I'll put a marker on the chart for each sound. (Give corrective feedback and demonstrate again if necessary. Use markers.)

ex. l - e - ss Did you hear 3 sounds? We put 3 markers up

m - e How many sounds did you hear? (Repeat for each example.) That's right. 2 sounds so we put 2 markers up.

m - a - n	r - oa - d	s - a - m
m - ea - n	r - a - ce	s - ou - p
	m - o - ss	s - ea - t

Ending review

Today we continued to work on hearing all the separate sounds in a word.

It's hard.

We must listen carefully to hear each separate sound. We'll keep practicing!

Group E3
Auditory and Visual Cues

Lesson #7

Beginning review

- Today we are going to continue listening for sounds in words. Let's call them sound parts in a word.
- We have to be extra good listeners to hear all the sound parts in a word. We'll use our markers to help us.
- It's important to be able to do this. It can help us when we begin to learn to read.

Lesson objective

- Let's listen to these words. See if you can hear all the sounds in each word. I'll say each word the regular way then I'll say it all stretched out like this: Mom/ m - o - m. When I stretch it out, I'll put up a marker for each sound we hear. Ready?

ex. man/ m - a - n row/ r - o - w saw/ s - aw
log/ l - o - g me/ m - e mop/ m - o - p

(Remember to use markers throughout lesson.)

- Now you think of a word. Try to think of a short word! When I call on you, say your word. Then together we'll stretch it out and listen for it's sound parts. (Elicit 4-5 suggestions from children one at a time. Say word in a normal way then say it slow and stretched. Have children repeat each after you.)

This time I'll choose a word and say it the regular way. Then let's stretch it out together like this and put up our markers: moon/ m - oo - n.

ex. road/ r - oa - d fat/ f - a - t hop/ h - o - p
see/ s - ee suit/ s - ui - t

Ending review

You've done a good job today. This is hard! But we'll learn to listen carefully to each sound part in a word.

Group E3
Auditory and Visual Cues

Lesson #8

Beginning review

- Today we will continue to work on listening for sound parts in words.
- Remember we are not looking for letters. We don't have to think about letters at all! We're listening carefully for the sounds in words.
- It's important to pay attention and listen carefully.

Lesson objective

- Listen to these words. I'll say each one slowly and stretch it out. Then you tell me what word I said. I'll do one for you to show you how. L - a - mb/ lamb. See how I did it? Now you try. (Use markers)

ex. r - a - n m - i - ss b - ee s - i - p
l - a - p r - oo - t s - a - w

- Now let's try something new. I'll say a word then we'll stretch it out together. Then we'll say it again stretched out but this time we'll clap for each sound part in the word. Watch, I'll show you how: moose/ m - oo - se/ m (clap) - oo (clap) - se (clap). See? I clapped for each sound part in the word. Now let's do some together.

ex. run/ r - u - n/ r (clap) - u (clap) - n (clap)
seat/ s - ea - t/ s (clap) - ea (clap) - t
(clap)
mom/ / - o - m/ (Repeat - 3 claps.)
rip/ r - i - p/ (Repeat - 3 claps.)
me/ m - e/ (Repeat - 2 claps.)

Ending review

- Today we practiced listening for and hearing sound parts in words.
- We also took words that were stretched out and put them back to how they really sound. And we found that we can clap for each sound in a word. That can help us separate each sound in a word.

Group E3
Auditory and Visual Cues

Lesson #9

Beginning review

- Today we'll do some more work with sounds in words.
- Who can tell me why it's important to be able to hear each sound part in a word? (Elicit responses: help us learn to read, make us good listeners, etc.)

Lesson objective

- Let's say some words together then as we stretch them out, let's clap for each sound we hear. Watch - I'll show you how.
- I'll say a word like "ham." You repeat it. Then we'll say it together slowly and stretched so we can hear each sound. Like this: h - a - m. I clap for each sound: h - (clap) - a (clap) - m (clap). Three sounds, three claps.
- Now let's do some together. (Use these words.

Follow procedure above.)

ex.	man	be	sit	dad	hole
	saw	mom	fat	zip	tall
	meat	none	dig	loss	might
	lip	mat	hot	go	we
	art	hug	keep	pull	muff

Ending review

- Good job! Now we have learned to clap for each sound.
- That can help us hear where one sound ends and the next sound begins.

Group E3
Auditory and Visual Cues

Lesson #10

Beginning review

- Today we're going to practice listening for sound parts in some words.
- Remember words are made of sounds.
- We can put sounds together to make words.
- It's important to be a good listener.

Lesson objective

- I'll say a word then you say it after me. Then we'll stretch the word out slowly. Let's see if we can hear each sound in these words. For each sound we hear and say, I'll put a marker on our chart. (Say each word in a normal way, then slow and stretched. Use markers for each word.)

ex. can/ c - a - n hear/ h - ea - r we/ w - e
sat/ s - a - t dad/ d - a - d so/ s - o
hat/ h - a - t

- Now let's try those same words again. This time let's clap for each sound in a word when we stretch it out, just the way we did yesterday. I'll show you how: (Demonstrate.)

mom/ m - o - m/ m (clap) - o (clap) - m (clap)

- Now who wants to think of a word for us to practice on? We'll try to hear all it's sound parts. Raise your hand when you have a word. We'll say it together and then say it together stretched out. (Elicit words from children.)

Review

You are learning to listen for each sound in a word. You're doing a good job!

Group E3
Auditory and Visual Cues

Lesson #11

Beginning review

- Be sure you listen carefully today. We'll be working on hearing sound parts in words again.
- Remember this is important. It can help you when you begin to learn to read. And it can help you figure out new words.

Lesson objective

- I'll say a word then let's see who can repeat it and then say it again very slowly and stretched out. I'll put a marker on our chart for each stretched sound. Then we'll all say it stretched out together. Let's try it. We'll help if you get stuck!

(Call on individual students to stretch words. Help as needed. Use markers. Have class repeat it slow and stretched after child.)

	You say	Child says	Class says
ex.	mom	m - o - m	m - o - m
	peep	p - ee - p	p - ee - p
	sat	s - a - t	s - a - t
	ran	(Continue same procedure.)	
	hop		
	ride		
	lap		
	bee		

- This time let's stand up and stamp our feet for each sound we hear in a word. we've done this with claps. Now let's try it with our feet like this: mom/ m - o - m/ m (stamp) - o (stamp) - m (stamp)

- I'll say the word then you say it. I'll stretch it out then you stretch it. Then we'll stretch it again but this time we'll stamp our feet for each sound we hear in the word. Ready? (Use same words as above.)

Review

- Good job! Now we can stamp our feet and clap our hands as we listen for sound parts in words. Good for you.

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Auditory and Visual Cues

Lesson #12

Beginning review

- We've been learning to listen carefully for the separate sounds in words.
- We know we can put sounds together to make words.
- Now let's be extra good listeners today and see if we can hear each sound in some words.

Lesson objective

- Today let's start off by practicing saying some words we know very slowly and stretch them out. I'll say a word in a regular way then I'll say it slowly and stretched out. You repeat it after me. I'll put a marker on our chart for each sound. Watch! Ready? (Use the examples below, add more if more practice is needed. Use markers.)

ex. cat/ c - a - t mop/ m - o - p late/ l - a - te
saw/ s - aw kit/ k - i - t some/ s - o - me
fish/ f - i - sh dad/ d - a - d fool/ f - oo - l
moose/ m - oo - se more/ m - o - re
him/ h - i - m home/ h - o - me me/ m - e

- Now let's use these same words and clap our hands for each sound when we say them slowly and stretched out. Watch - I'll show you. sis/ s - (clap) i - (clap) - s. (Use same words as above. Demonstrate again as necessary.)

sis/ s (stamp) - i (stamp) - s (stamp)

Ending review

- Good job! It's fun to clap and stamp, isn't it? And clapping and stamping can help us hear where one sound ends and another sound begins.

Group E3
Auditory and Visual Cues

Lesson #13

Beginning review

- We've been talking about sound parts in words.
- We know words are made of sound. When we put sounds together, we can make words.
- When we are working on listening for sounds in words, we don't have to think about letters. We work on learning our letters at other times during the day. Right now we have to listen very carefully.

Lesson objective

- Listen to these words. I'll say them in a normal way and then stretch them out so you can hear each sound. You repeat them after me. Who would like to come up to the chart and put up the markers? Remember we use a marker for each sound we hear and say. I'll help. (Do three examples to demonstrate. Solicit volunteers.)

ex. man/ m - a - n sat/ s - a - t bee/ b - ee
so/ s - o fan/ f - a - n four/ f - ou - r
zoo/ z - oo can/ c - a - n suit/ s - ui - t
dog/ d - o - g foam/ f - oa - m too/ t - oo
lamb/ l - a - mb soap/ s - oa - p it/ i - t

- Now let's say them again and boys, you clap each sound. Remember to clap when we say each sound slowly and stretched out. Then girls, you'll do the clapping. Let's try it. (Use same words above twice more.)

Ending review

- Remember to really listen carefully.
- We can learn to listen for sounds in words. We'll keep practicing.

Group E3
Auditory and Visual Cues

Lesson #14

Beginning review

- We've not only learned to hear the sound parts in words. We know why it's important to be able to do this. Who can tell me why it's important? (Elicit various responses.)

- Good. I'm glad you understand why this is important work we're doing. Let's get to work.

Lesson objective

- Listen to these words. I'll say them then you say them. Then we'll stretch each word out to hear each sound part. You can put up the markers for each sound. Who would like to do the markers? Ready? Here we go. (Use these examples, add your own if more practice is necessary.)

ex. made/ m - a - de in/ i - n dad/ d - a - d
seat/ s - ea - t at/ a - t fish/ f - i - sh
too/ t - oo each/ ea - ch far/ f - a - r
see/ s - ee meat/ m - ea - t toe/ t - oe

- Now you think of a word and we'll try to hear its sound parts. Try to pick a short word for us. Some long words have too many sounds for us. (Elicit suggestions from students. Say in normal way then slow and stretched with class.)

Ending review

- Hearing sound parts in words can help us learn to read.

- We'll be able to figure out words we don't know.

- If we listen very carefully and then say each sound in a word, we can do it!

Group E3
Auditory and Visual Cues

Lesson #15

Beginning review

- Tell me why it is important to listen for sound parts in words.
- When we put sounds together, what do we have?
- Let's work hard today. See if you can hear and say each sound in these words.

Lesson objective

- Who can say the word I give you and then stretch it out for us very slowly? Does someone want to try? (Solicit volunteers.)

- I'll say a word. You repeat it and then stretch it out. You can put the markers on our chart. Remember we use one marker for each sound in a word.

ex. mom/ m - o - m	lot/ l - o - t	Tim/ T - i - m
me/ m - e	lab/ l - a - b	us/ u - s
cat/ c - a - t	talk/ t - a - lk	Sue/ S - ue
Pete/ P - e - te	mat/ m - a - t	tee/ t - ee

- Now let's use those same words and clap for each sound part we hear. First we'll say them in a normal way. Then we'll really stretch them out and clap each sound, too. I'll say the word first. You repeat it after me. Then we'll stretch it together.

Ending review

- We're getting better and better at hearing and saying sound parts in words.
- I liked the way some of you tried to do it on your own. That was good!

Group E3
Auditory and Visual Cues

Lesson #16

Beginning review

- Let's go on with our work today. We'll practice hearing and saying sound parts in words.
- Remember you must be a super listener!

Lesson objective

- Let's say these words together one at a time.
- First we'll say them in a regular way. Then we'll say them slowly and stretch them out. We'll use our markers to help us. Listen so you will hear each sound part and be sure you say each one, too. (Say it word, have class repeat then stretch it slowly together. Follow example of first 2 words.)

ex. come/ c - o - me	me/ m - e	
done	take	read
cat	do	some
deep	bee	nap
so	mess	cup
coon	it	at
set	late	mop

- Now let's say those same words again and stamp our feet when we stretch them out. Do it like this.
(Demonstrate with first 2 examples. Use same words as above.)

come/ c (stamp) - o (stamp) - me (stamp)
me/ m (stamp) - e (stamp)

Ending review

- Every time we practice with hearing sound parts in words, you get better and better!
- Remember you must listen, say each sound, and sometimes we'll clap our hands or stamp our feet, too!

Group E3

Auditory and Visual Cues

Lesson #17

Beginning review

- Get ready to work hard! And get ready to listen carefully.
- Remember you have to really open those ears and listen to hear each little sound in a word.
- This is important for you to learn. It will help you later when you begin to learn to read.

Lesson objective

- Some words have just one sound like the word "a" in "a story." We only need one marker for "a."
- Some words have two sounds. Can you think of a word with just two sounds? (Elicit responses. If none, give example "so.") Words with two sounds get two markers, one marker for each sound.
- Who can think of some other words with just two sound? (Elicit words like it, at, to, as.)
- Some words have three sounds. Listen to these:
ex. cat/ c - a - t (Use markers.)
 toot/ t - oo - t (Use markers.)
 tin/ t - i - n (Use markers.)
- Some words have lots of sounds. These sounds can be hard to hear. Listen to some examples.
ex. puppy/ p - u - pp - y super/ s - u - p - er
 floor/ f - l - oo - r pant/ p - a - n - t
- Now let's work on some words together. I'll give you a word. You repeat it after me. Then let's say it slowly and stretched out together. I'll put one marker on our chart for each sound in each word.
ex. fit bowl mitt pup meat
 it dip pan cat home
 lap loan shop eat him
 for see hum some if

Ending review

- Today we went over the idea that some words have lots of sounds. Some words have just a few sounds.
- We know when we put sounds together, we can make words.

Group E3
Auditory and Visual Cues

Lesson #18

Beginning review

- Do you remember yesterday how we talked about the number of sounds in words?
- We know some words have lots of sounds like the word "puppy." I'll say it for you so you can hear all its sounds: p - u - pp = y. (Hold up one finger for each sound, four fingers up at end of word.)
- Here's another word with lots of sounds. Listen while I say it. I'll put up one finger for each sound I say.
sandwich/ s - a - n - d - w- i - ch
- Seven sounds - can you believe it?

Lesson objective

- Today let's try putting one finger up for each sound we hear in a word. We'll do it together just like I showed you. Ready?
ex. dog/ d - o - g. Dog has three sounds so we should have 3 fingers up.
(Same procedure for rest of examples.)
- ex. cat fish man it soap
hose mom cap or soup
rug fan call set hit
rush tan Sam mow wall

- Good! Now let's say them again and stand up and stamp our feet for each sound we hear. We'll stamp when we are saying the word slowly and stretched out so we can hear each sound part. (Use same words as above.)

Ending review

- Did you see how we can show how many sounds a word has? We can show the sound parts by holding up our fingers or stamping our feet.
- Some words have lots of sounds. Some have just a few.

Group E3
Auditory and Visual cues

Lesson #19

Beginning review

- Yesterday we held up one finger for each sound we heard in a word. Remember how we did that?
- We know some words have just a few sounds. Some words have lots of sounds! All words are made of sounds.

Lesson objective

- Today let's try something new. Let's see if we can listen for the very last sound in some words. This is called the ending sound. It is the very last sound you hear in a word.

- Listen and I'll show you what I mean.
ex. dog/ d - o - g. The last sound I hear is the /g/ sound.

cat/ c - a - t. The last sound in cat is /t/.
it/ i - t. The last sound in it is /t/.

- Now let's try some together. I'll say a word. You repeat it. We'll say it very slowly and listen for the very last sound. Ready?

- ex. cat/ c - a - t. The last sound was /t/.
am/ a - m. The last sound was /m/.
fish (Continue as with the first 2 examples.)
ham run so man dad
top beet fun deep sum
cup took read do me
sat beam key sit nap

- See how we can hear just the last sound in a word?
- When we first started to practice hearing sound parts in words, we listened for the first sound.
- Now we are so good, we can hear the last sound in a word.

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Auditory and Visual Cues

Lesson #20

Beginning review

- Yesterday we worked on hearing the very last sound in some words.
- The ending sound is the last sound we hear. In the word "cat," the last sound we hear is /t/. In the word "home," the last sound we hear is /m/.

Lesson objective

- Today let's practice listening for sounds in words and clapping them.
- I'll say a word. Then we'll say it together in a regular way. Then we'll say it together all stretched out so we can hear every sound part. Finally we'll say it together slowly and clap for each sound we hear. Ready? Here we go.

ex.	man	top	run	sit
	at	rope	on	Pete
	same	it	cat	fun
	off	beet	jam	fat
	goof	sum	dog	nut

- This time let's use the same words only we'll do it a little differently. After I say the word, raise your hand if you'd like to try stretching and clapping it all by yourself. If you get stuck, I'll help. Any volunteers for the first one? (Solicit volunteers.) Good, here we go!

(Use word list above. Say the word. Let child segment it.)

Ending review

- Good job! You are really getting good at taking words apart and listening for their sounds.

Group E3
Auditory and Visual Cues

Lesson #21

Beginning review

- We've been listening to words and breaking them into their sound parts.
- We've listened for the first sound in words.
- We've listened for the ending sound in words.
- We've even found we can count how many sounds we hear in a word! We're doing great!

Lesson objective

- Today we're going to try something a little new. First we'll practice with some words saying them in a regular way and then slowly and stretched so we can hear each sound. Let's do that now.
- I'll say a word, you repeat it. We'll put our markers up to help us. Then together we'll say it slowly and stretched out so we can hear each sound part. Here we go:

ex.	made	dish	bed	neat	soup
	due	run	it	hear	cane
	four	six	jam	putt	zoo
	seat	mom	sis	sad	bro

- Now this time let's try something new. I'll say the word stretched out first. You see if you can figure out what the word is. Here I'll show you what I mean:
 - If I say a word like this m - o - m, you would say "mom."
 - If I say a word like this s - ee, you would say "see." (Give more examples as necessary.) Now let's try it. Raise your hand if you can figure out what my stretched out word is. (Use list above.)

Ending review

- You see? We can take words apart and hear each little sound part. And now we can put sound parts back to make words.

Group E3
Auditory and Visual Cues

Lesson #22

Beginning review

- Let's work again on hearing all the sounds in some words.
- Remember this is an important skill for us to learn. It can help us when we begin to read.

Lesson objective

- We're going to do something today that we've done before.
- We're going to listen and say the very first sound we hear in a word. For example, if I say the word "man," you will say m - an. If I say the word bean, you will say b - ean. If I say the word "sit," you will say s - it. Okay? Here we go. Let's do the first ones together. (Do the first 4 or 5 as a group then call on individuals.)

ex.	moon	beat	sat	road	go
	sum	fish	rug	vet	sew
	ham	yap	lamb	sass	top
	hat	zip	done	get	jam
	sock	shirt	coat	pea	far

- Now I'm going to make it really tricky! Do you think you can use the same words and tell me their ending sound? Remember the ending sound is the last sound you hear in a word. Let's try it.

- If I say the word "man," you will say ma - n. If I say the word "bean" you will say bea - n. If I say the word "man" you will say ma - n. Let's do the first ones together. Then you can volunteer to try some on your own. (Do first 4-5 as a group then call on individuals. Use same words as above.)

Ending review

- Today we listened for the beginning and the ending sounds in some words.
- We'll practice some more tomorrow.

Group E3
Auditory and Visual Cues

Lesson #23

Beginning review

- We'll continue with listening and saying sound parts in words.
- Remember sound parts are important. When we put sounds together, we can make words.

Lesson objective

- I'll say a word then you say it. Then we'll say it together slowly and stretched. We'll use our markers for each sound part in a word. Who would like to put up the markers today? That way we will hear each of the sound parts and see the markers, too.

ex. book run pen pan draw
right walk read sit room
wrote door line mop Sam
peep ran lap bee hop
toot can tin pup fog

- Now let's give you a turn to think of a word. Raise your hand when you think of a word, tell us the word when I call on you. Then we'll try to say it real slow and stretched out. We'll try to hear all it's sound parts. Who has a word for us to try? (Solicit volunteers.)

Ending review

- We worked hard today. You thought of some good words for us to practice on.

Group E3
Auditory and Visual Cues

Lesson #24

Beginning review

- We know sounds make words. We can put sounds together to make words.
- We can take words and stretch them apart so we can hear each sound in them.
- Today we'll practice doing that.

Lesson objective

- Listen and say these words after me.
- We'll say them their regular way then we'll say them slowly and stretched. Who would like to put the markers on our chart? Remember the markers stand for each sound in a word. (Use usual you say, they say procedure.)

ex. dog bird cat eagle ape
cot rat chick horse moose
hen pig home tree limb

- Now let's try something a little harder. We've been working with words that have one, two or three sounds.

- Let's try stretching some words with more than 3 sounds. Let's try the word "puppy." I'll say it for you very slowly. Put up a finger each time you hear a different sound. Ready?

ex. $\text{BHBHV} / \text{B} = \text{H} = \text{BB} = \text{V}$

- How many sounds did you hear? (Elicit responses.)
Let's say it together very slowly and hold up one finger for each sound we hear.

ex. puppy / p - u - pp - y. Did everyone count four fingers up? That means there are four sounds in the word "puppy."

- Let's try some more words. I'll say a word and you repeat it. We'll stretch it together. And we'll hold up one finger for each sound we hear.

ex.	grass (4 sounds)	sister (5 sounds)
	daddy	momma
	doggy	kitty
	chicken	happy

Ending review

- This is harder, isn't it? You are doing a good job and listening hard.

Group E3
Auditory and Visual Cues

Lesson #25

Beginning review

- Yesterday we practiced on words that had more than 3 sounds.
- Let's work on that again today.

Lesson objective

- I'll say a word, you repeat it after me. Then we'll say it together stretched out.
- This may be a little harder. Some of the words may have more sounds to listen for. (You say, they say procedure.)

ex.	rug	door	soap	grass
	desk	sit	jar	broom
	bow	tree	deck	trick
	paper	pen	pick	push
	mommy	daddy	sister	bro

- Now I'll say those same words to you one at a time. But I'll say them their stretched out.
- Raise your hand if you can tell me what word I'm stretching out. (Use same words again. Say them slowly and stretch each sound apart. Take volunteers to respond.)

Ending review

- You are doing a great job!
- You have learned to take words and stretch them so you can hear each sound.
- Now you are learning to take sounds and put them back into words.

Group E3
Auditory and Visual Cues

Lesson #26

Beginning review

- Today we'll listen again for sounds in words.
- Remember this can help us when we begin to learn to read.
- Listen carefully so you can hear each sound in some words.
- Remember we're not worried about letters here - we're listening for sounds in words.

Lesson objective

- Let's listen today for ending sounds in some words. The ending sound is the last sound we hear in a word.
- Listen to some examples then we'll do some together.

ex. mom/ mo - mmm be/ b - eee sit/ si - ttt

- Now let's do some words together. First I'll say them normally then I'll say them and stretch out the ending sound. You repeat the word after me.

ex. sun race Tom car
 ram puff man chair
 see moon sky some

Ending review

- Good job! Tomorrow we'll practice some more.

Group E3
Auditory and Visual Cues

Lesson #27

Beginning review

- Let's talk about why it is important to listen for sounds in words. Who can give me one reason? (Elicit responses.) Can you think of other reason? (Answers may include learning to read, learning to listen carefully, etc.)
- Listen carefully so you can hear each sound we say.

Lesson objective

- Let's say some words together then say them slowly and stretched. We'll use our markers so that we can see each time we have a new sound in a word.

ex.	all	met	Sam	zap	be
	do	beet	name	see	jam
	vote	men	soft	kid	hope
	mitt	dog	cat	hen	seek

- Now can you think of some words for us to try? (Solicit responses.) Raise your hand if you have a word. We'll try to say it slowly and see what sounds it has.

Ending review

- You are doing a good job!
- Remember to listen carefully.

Group E3
Auditory and Visual Cues

Lesson #28

Beginning review

- Remember to listen today for the sound parts in words.
- You must be good listeners to do this.
- Today we want to listen for the very first sound in some words.

Lesson objective

- Let's try to hear the beginning sound in some words. Remember this is the very first sound we hear in a word.
- In the word "girl," the first sound we hear is /g/. In the word "boy," the first sound we hear is /b/. Let's try some together.

- I'll say a word. You repeat it. Then we'll say it again but this time we'll stretch out the first sound in the word. Ready?

ex.	man	like	run	saw	Tom
	mickey	mouse	lap	mom	race
	mighty	bread	rap	lollipop	right
	zip	fan	sofa	cook	got
	super	low	sat	desk	bed

Ending review

- Today we listened for sounds at the beginning of words.
- We are doing great!

Group E3
Auditory and Visual Cues

Lesson #29

Beginning review

- Let's practice listening to words and clapping their sounds today.
- You're getting good at this!
- Remember some words may have just 2 or 3 sounds, but others might be longer.

Lesson objective

- I'll say a word and then you say it. When you say it, clap for each sound you hear.
- Listen - I'll do the first one and show you.
- ex. mom/ m - (clap) - o (clap) - m (clap).
- We've done this before. Let's try it.

ex.	dad	beat	lamb	sofa	mat
	race	man	see	a	sit
	lap	right	low	pet	sand
	row	wall	seal	it	on
	only	fan	farm	sew	page

- Now let's try it again but this time stand up. We'll stamp our feet for each sound we hear.

Ending review

- Good job!
- You have learned to listen well.

Group E3
Auditory and Visual Cues

Lesson #30

Beginning review

- We will work on listening for sound parts in words for just a few more days. You have learned a lot and done very well!
- Who can tell me why it's important to be able to hear sounds in words? (Elicit responses.)
- Why are we working on this? What can it do for us?

Lesson objective

- Here are some words. Let's say them together then stretch them out. We want to be able to hear each sound part. We'll put a marker on our chart for each sound we hear in the word.

ex.	feet	soap	book	in	pan
	lamp	tummy	pen	head	seat
	miss	free	man	blue	red
	black	green	clay	brush	sand
	sandwich	before	purple	ham	home

- Now let's say them again. This time let's clap for each sound in a word. We've done this before - you know how to do it.

Ending review

- Remember it doesn't matter how big or long a word is.
- We can stretch out any word and listen for all it's sound parts.

Group E3
Auditory and Visual Cues

Lesson #31

Beginning review

- We're just about finished working on listening to sound parts in words.
- Today we'll work on some more words. We're really getting good at this!
- It will really help us when we begin to learn to read.

Lesson objective

- Today I'll say a word. You say it then we'll stretch it out so we can hear each sound. We'll use our markers for each sound we hear. Ready?

ex.	pop	soak	map	foot	paper
	bee	ape	can	dug	pepper
	go	hand	piece	Sam	arm
	leg	pick	fame	fish	glass
	dish	cup	spoon	fork	bowl

- Now can you think of some words for us? If you have a word, raise your hand. Tell us the word and we'll repeat it. The together we'll try to say it very slowly so we can hear all it's sound parts.
(Solicit suggestions.)

Ending review

- Good job! It's hard to trick you now.

Group E3
Auditory and Visual Cues

Lesson #32

Beginning review

- Today is our last lesson in listening for sound parts in words.
- We have learned a lot! We can take almost any word and stretch it out so we can hear each of its sounds.
- Let's practice one more time. Then we'll be finished

Lesson objective

- Let's say some words together and then clap for each sound we hear when we say it very slowly.
- I'll do one first. Leg/ l - (clap) e - (clap) g (clap)

- Now let's do some together.

ex.	arm	a	sit	spit	mow
	to	like	hand	best	feet
	it	bow	ruler	top	green
	pest	farm	for	fort	forts
	poke	pokes	mommy	daddy	teacher

- Now who would like us to try one of their words? Raise your hand if you have one.

Ending review

- You have worked hard and learned a lot!
- This will help you as you learn to read.

APPENDIX E

RAW DATA

Classroom El
IBM Writing to Read

KEY

Sex	F=1	M=2
Race	W=1	B1=2
Variable	1=WTR	
	2=A	
	3=AWVC	
	4=Control	
SES	0=Average	
	1=Free/Reduced	

Student	Sex	Race	SES	pre	post	Letter	Init	Letter
				test	test	Rec	Con	Matc
1	1	1	1	5	12	15	9	10
2	1	1	0	5	11	14	9	9
3	2	1	0	5	5	15	7	10
4	1	1	0	5	5	15	9	10
5	2	1	0	9	17	15	9	10
6	2	1	1	10	14	15	9	10
7	1	1	0	10	18	15	9	10
8	2	1	0	11	16	13	9	10
9	1	1	0	11	14	14	9	10
10	2	1	0	12	16	15	9	10
11	1	1	0	12	18	15	9	10
12	2	1	0	13	16	15	9	10
13	1	1	0	13	19	15	9	10
14	2	1	0	14	17	14	9	10
15	1	1	0	14	15	15	9	10
16	1	1	0	15	18	15	9	10
17	2	1	0	15	20	15	9	10
18	2	1	1	17	20	14	9	10
19	1	2	1	5	5	14	5	10
20	2	2	1	7	14	10	8	10
21	1	2	0	7	8	15	5	7

Classroom E2
Auditory Cue

KEY

Sex	F=1	M=2
Race	W=1	Bl=2
Variable	1=WTR	
	2=A	
	3=AWVC	
	4=Control	
SES	0=Average	
	1=Free/Reduced	

S t u d e n t	S e x x	R a c e e	S E S S	P r e t t e s t		L e t t e r r		I n i t c o n		L e t t e r M a t c h	
				P r e t t e s t	P o s t t e s t	P o s t t e s t	P o s t t e s t	P o s t t e s t	P o s t t e s t	P o s t t e s t	P o s t t e s t
22	2	1	0	5	12	15	5	9			
23	1	1	0	5	13	13	9	10			
24	1	1	0	5	14	14	7	10			
25	2	1	0	5	8	15	9	10			
26	1	1	0	5	17	14	9	10			
27	2	1	0	5	13	15	9	10			
28	1	1	0	6	5	15	9	10			
29	2	1	0	7	18	14	8	10			
30	2	2	1	9	14	14	7	10			
31	1	2	1	10	16	15	9	10			
32	2	1	0	10	17	14	9	10			
33	2	1	0	10	13	15	9	10			
34	1	1	1	10	15	13	9	10			
35	1	1	0	11	17	15	9	10			
36	1	1	0	11	18	13	8	10			
37	2	2	0	12	19	14	9	10			
38	1	1	1	13	15	14	9	10			
39	2	1	0	13	16	15	9	10			
40	2	1	0	14	17	15	9	10			
41	1	1	0	15	19	15	9	8			
42	1	1	1	7	15	12	7	8			

Classroom E3
Auditory and Visual Cues

KEY

Sex	F=1	M=2
Race	W=1	B1=2
Variable	1=WTR	
	2=A	
	3=AWVC	
	4=Control	
SES	0=Average	
	1=Free/Reduced	

Student	Sex	Race	SES	Pretty		Poster		Letter		Letter	
				S	T	S	T	E	S	I	M
43	1	1	0	5	20	15	9	10			
44	2	1	1	6	14	15	8	10			
45	1	2	1	5	18	13	9	8			
46	1	1	0	5	11	14	9	10			
47	2	1	1	5	18	13	9	8			
48	1	1	0	5	20	15	9	10			
49	2	2	1	6	18	14	6	10			
50	1	1	0	6	20	15	9	10			
51	1	2	1	6	16	13	8	9			
52	2	2	1	8	14	15	9	10			
53	2	1	0	10	19	15	9	10			
54	2	1	0	11	18	15	9	10			
55	2	1	0	11	18	15	9	10			
56	1	1	0	12	18	15	9	10			
57	2	1	0	12	20	14	9	10			
58	2	1	0	13	19	15	9	10			
59	2	1	0	14	20	15	9	10			
60	2	1	0	15	19	15	9	10			
61	1	1	0	16	20	14	9	10			

Classroom E4
Control

KEY

Sex F=1 M=2
 Race W=1 Bl=2
 Variable 1=WTR
 2=A
 3=AWVC
 4=Control
 SES 0=Average
 1=Free/Reduced

Student	Sex	Race	SES	Prettest		Posttest		Letter Rec		Letter Con		Letter Match	
				L	I	P	R	Letter	Init	Match	Letter	Match	
62	2	2	1	6	8	14	5	15	9	9	10	10	
63	1	2	1	5	5	14	8	15	9	9	10	10	
64	1	1	1	5	5	12	7	14	3	9	9	9	
65	2	1	0	5	11	14	3	15	9	9	10	10	
66	2	1	0	5	14	15	9	15	9	9	10	10	
67	2	1	0	5	8	15	9	15	9	9	10	10	
68	1	2	1	5	5	15	9	15	9	9	10	10	
69	2	1	0	8	12	14	9	15	9	9	10	10	
70	1	1	0	5	19	15	9	15	9	9	10	10	
71	1	2	1	9	11	15	9	15	9	9	10	10	
72	1	1	0	11	14	15	9	15	9	9	10	10	
73	1	1	0	11	17	14	9	15	9	9	10	10	
74	1	1	0	12	12	14	9	15	9	9	10	10	
75	2	2	1	12	16	15	9	15	9	9	10	10	
76	1	1	0	13	10	15	9	15	9	9	10	10	
77	2	1	0	13	17	15	9	15	9	9	10	10	
78	2	1	0	14	16	15	9	15	9	9	10	10	
79	1	1	0	16	15	14	9	15	9	9	10	10	
80	1	1	0	17	13	15	9	15	9	9	10	10	
81	2	1	0	19	15	15	9	15	9	9	10	10	

APPENDIX F
PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS TABLES

Table 1

Pearson Product Moment Correlations Coefficients (and Associated Probabilities) for Total Sample

	Pre	Post	LetRec	InitCon	LetMtch
Pre	1.0000 (0.0000)	0.4897 (0.0001)	0.2265 (0.0419)	0.3890 (0.0003)	0.2263 (0.0422)
Post	0.4897 (0.0001)	1.0000 (0.0000)	0.0587 (0.6023)	0.3886 (0.0003)	0.0822 (0.4652)
LetRec	0.2265 (0.0419)	0.0587 (0.6023)	1.0000 (0.0000)	0.2276 (0.0409)	0.2746 (0.0131)
InitCon	0.3890 (0.0003)	0.3886 (0.0003)	0.2276 (0.0409)	1.0000 (0.0000)	0.3774 (0.0005)
LetMtch	0.2263 (0.0422)	0.0822 (0.4652)	0.2746 (0.0131)	0.3774 (0.0005)	1.0000 (0.0000)

Pre = Tunmer-Nesdale Phonological Awareness Test pretest

Post = Tunmer-Nesdale Phonological Awareness Test posttest

LetRec = Letter Recognition subtest, Kindergarten Emergent Reading Assessment

InitCon = Initial Consonant subtest, Kindergarten Emergent Reading Assessment

LetMtch = Letter Matching subtest, Kindergarten Emergent Reading Assessment

Table 2

Pearson Product Moment Correlation Coefficients (and Associated Probabilities) for Group E1, IBM Writing to Read

	Pre	Post	LetRec	InitCon	LetMtch
Pre	1.0000 (0.0000)	0.8442 (0.0001)	0.1531 (0.5076)	0.4902 (0.0240)	0.2831 (0.2136)
Post	0.8442 (0.0001)	1.0000 (0.0000)	0.0114 (0.9608)	0.6629 (0.0011)	0.3312 (0.1424)
LetRec	0.1531 (0.5076)	0.0114 (0.9608)	1.0000 (0.0000)	0.0932 (0.6878)	-0.0811 (0.7264)
InitCon	0.4904 (0.0240)	0.6629 (0.0011)	0.0932 (0.6878)	1.0000 (0.0000)	0.5830 (0.0055)
LetMtch	0.2831 (0.2136)	0.3312 (0.1424)	-0.0811 (0.7264)	0.5830 (0.0055)	1.0000 (0.0000)

Pre = Tunmer-Nesdale Phonological Awareness Test pretest

Post = Tunmer-Nesdale Phonological Awareness Test posttest

LetRec = Letter Recognition subtest, Kindergarten Emergent Reading Assessment

InitCon = Initial Consonant subtest, Kindergarten Emergent Reading Assessment

LetMtch = Letter Matching subtest, Kindergarten Emergent Reading Assessment

Table 3

Pearson Product Moment Correlation Coefficients (and Associated Probabilities) for Group E2, Auditory Cues

	Pre	Post	LetRec	InitCon	LetMtch
Pre	1.0000 (0.0000)	0.5871 (0.0051)	0.1542 (0.5045)	0.3784 (0.0907)	-0.1006 (0.6642)
Post	0.5871 (0.0051)	1.0000 (0.0000)	-0.2284 (0.3193)	0.1036 (0.6547)	-0.1377 (0.5517)
LetRec	0.1542 (0.5045)	-0.2284 (0.3193)	1.0000 (0.0000)	0.2016 (0.3807)	0.1971 (0.3917)
InitCon	0.3784 (0.0907)	0.1036 (0.6547)	0.2016 (0.3807)	1.0000 (0.0000)	0.3825 (0.0870)
LetMtch	-0.1006 (0.6642)	-0.1377 (0.5517)	0.1971 (0.3917)	0.3825 (0.0870)	1.0000 (0.0000)

Pre = Tunmer-Nesdale Phonological Awareness Test pretest

Post = Tunmer-Nesdale Phonological Awareness Test posttest

LetRec = Letter Recognition subtest, Kindergarten Emergent Reading Assessment

InitCon = Initial Consonant subtest, Kindergarten Emergent Reading Assessment

LetMtch = Letter Matching subtest, Kindergarten Emergent Reading Assessment

Table 4

Pearson Product Moment Correlations Coefficients (and
Associated Probabilities) for Group E3, Auditory and
Visual Cues

	Pre	Post	LetRec	InitCon	LetMtch
Pre	1.0000 (0.0000)	0.3971 (0.0922)	0.3528 (0.1384)	0.2933 (0.2229)	0.4171 (0.0756)
Post	0.3971 (0.0922)	1.0000 (0.0000)	0.1716 (0.4822)	0.1663 (0.4961)	0.0502 (0.8380)
LetRec	0.3528 (0.1384)	0.1716 (0.4822)	1.0000 (0.0000)	0.2322 (0.3386)	0.8112 (0.0001)
InitCon	0.2933 (0.2229)	0.1663 (0.4961)	0.2322 (0.3386)	0.10000 (0.0000)	-0.0366 (0.8817)
LetMtch	0.4171 (0.0756)	0.0502 (0.8380)	0.8112 (0.0001)	-0.0366 (0.8817)	1.0000 (0.0000)

Pre = Tunmer-Nesdale Phonological Awareness Test pretest

Post = Tunmer-Nesdale Phonological Awareness Test posttest

LetRec = Letter Recognition subtest, Kindergarten Emergent Reading Assessment

InitCon = Initial Consonant subtest, Kindergarten Emergent Reading Assessment

LetMtch = Letter Matching subtest, Kindergarten Emergent Reading Assessment

Table 5

Pearson Product Moment Correlation Coefficients (and Associated Probabilities) for Group E4, Control

	Pre	Post	LetRec	InitCon	LetMtch
Pre	1.0000 (0.0000)	0.5223 (0.0181)	0.2995 (0.1994)	0.4163 (0.0678)	0.3554 (0.1240)
Post	0.5223 (0.0181)	1.0000 (0.0000)	0.4317 (0.0573)	0.3485 (0.1320)	0.3342 (0.1498)
LetRec	0.2995 (0.1994)	0.4317 (0.0573)	1.0000 (0.0000)	0.4543 (0.0422)	0.6742 (0.0011)
InitCon	0.4163 (0.0678)	0.3485 (0.1320)	0.4543 (0.0442)	1.0000 (0.0000)	0.7167 (0.0004)
LetMtch	0.3554 (0.1240)	0.3342 (0.1498)	0.6742 (0.0011)	0.7167 (0.0004)	1.0000 (0.0000)

Pre = Tunmer-Nesdale Phonological Awareness Test pretest

Post = Tunmer-Nesdale Phonological Awareness Test posttest

LetRec = Letter Recognition subtest, Kindergarten Emergent Reading Assessment

InitCon = Initial Consonant subtest, Kindergarten Emergent Reading Assessment

LetMtch = Letter Matching subtest, Kindergarten Emergent Reading Assessment

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BIOGRAPHICAL SKETCH

Barbara Niess Buys was born on March 11, 1944, in West Point, New York. She lived in Massachusetts and Kentucky before her family settled in Ann Arbor, Michigan, in 1950.

Barbara graduated from Ann Arbor High School and the University of Washington. Her degree from the University of Washington in 1967 was a Bachelor of Arts. Her field of study was French literature with a minor in English.

In 1971, Barbara moved to Gainesville, Florida, where she began work on a master's degree in early childhood education. She received a Master of Education degree in 1972 and began teaching kindergarten at Metcalfe Elementary School in the fall of that year. While continuing to teach, she returned to the University of Florida for work on certification in administration and reading. She began her doctoral studies in reading with a special emphasis on beginning reading instruction.

Barbara has served as Supervisor of Early Childhood programs for the School Board of Alachua County as well as principal at the elementary school level. She is currently principal of Talbot Elementary School and resides in Gainesville with her teen age son. She has two daughters who live in Atlanta, Georgia, and Santa Fe, New Mexico, respectively.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



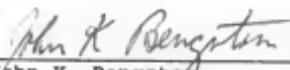
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